2014-2015 Current US Influenza Activity and Antiviral Recommendations

National Center for Immunization & Respiratory Diseases
Influenza Division
SUMMARY OF CURRENT 2014-15 INFLUENZA ACTIVITY
National Surveillance

http://www.cdc.gov/flu/weekly/fluactivitysurv.htm
U.S. Virologic Surveillance
## U.S. Virologic Surveillance

<table>
<thead>
<tr>
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</tr>
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</tr>
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</tr>
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<td>Positive specimens by type/subtype</td>
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</tr>
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<td>Influenza A</td>
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</tr>
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<td>297 (4.0%)</td>
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</table>
U.S. Virologic Surveillance

Of 288 viruses tested, 197 (68.4%) were antigenically or genetically different from the H3N2 vaccine virus.

<table>
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</tr>
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</tbody>
</table>
Laboratory – Antiviral Analysis

Viruses were tested for susceptibility to FDA-approved neuraminidase inhibitors in neuraminidase inhibition and/or pyrosequencing assays

<table>
<thead>
<tr>
<th>Type/Subtype</th>
<th>Oseltamivir Resistant/Tested FY15</th>
<th>Zanamivir Resistant/Tested FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(H1N1)pdm09</td>
<td>0/11</td>
<td>0/11</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>0/521</td>
<td>0/521</td>
</tr>
<tr>
<td>B</td>
<td>0/87</td>
<td>0/87</td>
</tr>
</tbody>
</table>
Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2014-15 Influenza Season Week 53 ending Jan 03, 2015

- High / moderate ILI activity – 34 states
- Low / minimal activity – 15 states
- Widespread – 46 states
- Regional / local activity – 4 states
Laboratory-Confirmed Influenza Hospitalizations
Preliminary rates as of Jan 3, 2015
Laboratory-Confirmed Influenza Hospitalizations
Preliminary rates as of Jan 3, 2015

Selected Underlying Medical Conditions: 2014-15 Season

- **Asthma**: 7.6% (Children), 21.9% (Adults), 27.0% (Females 15-44 yr)
- **Cardiovascular disease**: 23.9% (Adults)
- **Chronic lung disease**: 32.1% (Adults)
- **Immune suppression**: 13.3% (Children), 17.9% (Adults)
- **Metabolic disorder**: 47% (Adults)
- **Neuropathic disorder**: 18.7% (Adults)
- **Neuromuscular disorder**: 4.3% (Adults)
- **Obesity**: 15.2% (Adults)
- **Pregnancy**: 27.3% (Adults)
- **Renal disease**: 15.6% (Adults)
- **No known condition**: 41% (Adults)

Underlying medical conditions:
- 59% of children
- 94% of adults
Number of Influenza-Associated Pediatric Deaths by Week of Death: 2011-12 Season to Present
Season Overview

- Influenza A(H3N2) viruses continue to be the most common so far in the United States
  - H3N2 predominant years are often associated with higher mortality and hospitalization rates among older adults and young children
- Activity so far this season is similar to the 2012-2013 season, the last season when H3N2 viruses predominated
- So far ~2/3 of H3 viruses analyzed are antigenically or genetically different from the H3N2 component in the 2014-15 vaccine
ANTIVIRAL USE IN THE 2014-15 INFLUENZA SEASON
Antiviral Use

- Evidence from current and previous influenza seasons suggests that antiviral drugs are underutilized
  - Low awareness of antiviral recommendations
  - Wide range in perception about antiviral effectiveness
  - Many clinicians may require a positive diagnostic test before prescribing; results of rapid influenza diagnostic tests (not molecular) may not be accurate
CDC Health Update
Reminders to Clinicians

1) Influenza should be high on the list of possible diagnoses for ill patients

2) All hospitalized and all high-risk patients with suspected or confirmed influenza should be treated as soon as possible without waiting for confirmatory testing
CDC Antiviral Recommendations

- All patients in the following categories with suspected or confirmed influenza **should** be treated as soon as possible, without waiting for confirmatory influenza testing
  - Patients with severe, complicated, or progressive illness
  - Patients at high risk for complications from influenza (either outpatient or hospitalized)
CDC Antiviral Recommendations

- Antiviral treatment may be prescribed on the basis of clinical judgment for other patients
  - Previously healthy (non-high risk) outpatients with suspected or confirmed influenza
Persons at High Risk for Influenza Complications

- Children <2 years
- Adults >65 years
- Pregnant and postpartum women
- American Indians and Alaska Natives
- Persons who are morbidly obese (BMI >40)
- Residents of long-term care facilities
Persons at High Risk for Influenza Complications (continued)

- Persons with immunosuppression
- Persons <19 years who are receiving long-term aspirin therapy
- Persons with underlying medical conditions: chronic pulmonary, cardiovascular (except hypertension alone), renal, hepatic, hematologic, and metabolic disorders (incl. diabetes), or neurologic and neurodevelopment conditions
Timing of Treatment

- When indicated, antiviral treatment should be started as soon as possible after illness onset.
- Ideally, treatment should be initiated within 48 hours of symptom onset.
- Treatment should not be delayed even for a few hours to wait for the results of testing.
  - A negative rapid influenza antigen diagnostic test does not exclude a diagnosis of influenza.
Antiviral Medications

- **Oral oseltamivir (Tamiflu®)**
  - Recommended for treatment of all ages, chemoprophylaxis for age ≥3 months

- **Inhaled zanamivir (Relenza®)**
  - Recommended for treatment for age ≥7 years, chemoprophylaxis for age ≥5 years

- **Intravenous peramivir (Rapivab®)**
  - Approved on December 19, 2014, for treatment of acute uncomplicated influenza in persons ≥18 years
  - 600 mg dose infused over 15-30 min
For Additional Information

- **Summary of Influenza Antiviral Treatment Recs for Clinicians**: [http://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm](http://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm)


- **Interim Guidance for Influenza Outbreak Management in Long-Term Care Facilities**: [http://www.cdc.gov/flu/professionals/infectioncontrol/ltc-facility-guidance.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/ltc-facility-guidance.htm)

- **FDA Influenza (Flu) Antiviral Drugs and Related Information (including package inserts)**: [http://www.fda.gov/drugs/drugsafety/informationbydrugclass/ucm100228.htm](http://www.fda.gov/drugs/drugsafety/informationbydrugclass/ucm100228.htm)
Influenza
Antiviral Procurement

IHS National Supply Service Center
Pharmacy Support Branch
James J. Cummings, PharmD
james.cummings@ihs.gov

January 21, 2015
Flu Vaccine still Available for this Season (2014-2015)

- Contact Ms. Christy Farrow (Gay) christy.gay@ihs.gov
- She will forward a Flu 413 Form for ordering

<table>
<thead>
<tr>
<th>Products Available</th>
<th>Price per 10 doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Dose Vial (MDV) -10 doses/vial</td>
<td>$37.45</td>
</tr>
<tr>
<td>PFS - 0.25mL - 10 doses/package Pediatric (6-35 months) (Quadrivalent)</td>
<td>$159.75</td>
</tr>
<tr>
<td>PFS – 0.5mL – 10 doses/package Peds/Adult (36 months &amp; older) (Quadrivalent)</td>
<td>$120.91</td>
</tr>
<tr>
<td>High Dose PFS - 0.5mL - 10 doses/package</td>
<td>$221.96</td>
</tr>
</tbody>
</table>
Antiviral Ordering & Procurement

- Tamiflu 75mg Capsules blocked from ordering through McKesson and must be purchased through NSSC until stockpile depleted/expires
- Contact “Gabe” Wyatt (Aaron.Wyatt@ihs.gov) and he will forward a 413 form
  - Complete 413 and fax to “Gabe” (405) 951-6054, or e-mail
- NSSC has a limited number of all other Tamiflu strengths and dosage forms which may be ordered through McKesson when available.
Influenza Antivirals

- Tamiflu® Capsules, 75mg, BT/10 priced at $19.24 per bottle
  – Expires 06/2016 for on hand quantities—blocked in McKesson,
    Please contact NSSC for purchasing

- Tamiflu® Capsules, 30mg Blister Pack, 10’s priced at $63.68 per pack
  – Expires 07/2016

- Tamiflu® Capsules, 45mg Blister Pack, 10’s priced at $63.64 per pack
  – Expires 05/2016

- Tamiflu® Oral Suspension 6MG/ML, 60ML BT priced at $69.28 per bottle
  – Expires 07/2015

- Relenza® Disk Inhaler 5MG 5X4 priced at $21.83 each
  – Expires 08/2016
• **Please Note**: Tamiflu orders after 1:30PM Central Standard Time will be processed the next day thru NSSC

• Emergency orders should be processed through McKesson and Service First as this continues to be the fastest and most effective method to receive these products in a critical situation.
Rapivab™ (peramivir) 200mg vials (for Intravenous use)

✓ RAPIVAB™ 200 MG/20 ML VIAL (3 vials/pkg)

✓ Available thru McKesson Plasma & Biologics
  ➢ MPB ☎ 1-877-625-2566

✓ $950 (Open market pricing) not on contract
✓ Facility must be a hospital
✓ Next day delivery
Topics

• Describe current influenza-like-illness trends across the IHS

• Know influenza vaccine coverage rates for your IHS Area
IHS INFLUENZA AWARENESS SYSTEM (IIAS)
All IHS Areas
Influenza-Like Illness (ILI) All Surveillance Years - Continuous
Percentage of Visits for ILI per week
01/04/09 to 1/17/15

Percentage of ILI visits is number of ILI visits divided by total number of daily visits
Proportion of Outpatient Visits for Influenza-Like Illness (ILI)
Percent ILI for FluYear 2014 - 2015
ILINet vs. IIAS
9/28/14 to 1/17/15

Percentage of ILI visits is number of ILI visits divided by total number of daily visits (outpatient visits).
The horizontal line represents the 2013-2014 baseline. The baseline is the mean percentage of patient visits for ILI during non-influenza weeks for the previous three seasons plus two standard deviations.
Sources: ILINet - CDC Sentinel Surveillance System for Influenza-Like Illness, IIAS - IHS Influenza Awareness System
Percentage of ILI visits is number of ILI visits divided by total number of daily visits. The horizontal line represents the 2013-2014 baseline. The baseline is the mean percentage of patient visits for ILI during non-influenza weeks for the previous three seasons plus two standard deviations.
## All IHS Areas
### Seasonal Influenza Vaccine Coverage by Age Group*
#### 06/29/14 to 1/17/15
#### Active Clinical Population**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Active Clinical Population**</th>
<th>Seasonal Flu Vaccine (At Least 1 Dose)***</th>
<th>% Seasonal Flu (At Least 1 Dose)</th>
<th>Seasonal Flu Vaccine (At Least 2 Doses)</th>
<th>% Seasonal Flu (At Least 2 Doses)</th>
<th>Total # Doses Administered****</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5 months</td>
<td>5,439</td>
<td>107</td>
<td>2.0</td>
<td>4</td>
<td>0.1</td>
<td>111</td>
</tr>
<tr>
<td>6 - 23 months</td>
<td>26,947</td>
<td>14,225</td>
<td>52.8</td>
<td>3,010</td>
<td>11.2</td>
<td>17,277</td>
</tr>
<tr>
<td>2 - 4 years</td>
<td>65,646</td>
<td>20,367</td>
<td>31.0</td>
<td>411</td>
<td>0.6</td>
<td>20,852</td>
</tr>
<tr>
<td>5 - 17 years</td>
<td>245,696</td>
<td>82,064</td>
<td>33.4</td>
<td>770</td>
<td>0.3</td>
<td>83,148</td>
</tr>
<tr>
<td>18 - 49 years</td>
<td>520,082</td>
<td>132,854</td>
<td>25.5</td>
<td>1,413</td>
<td>0.3</td>
<td>134,786</td>
</tr>
<tr>
<td>50 - 64 years</td>
<td>208,970</td>
<td>86,532</td>
<td>41.4</td>
<td>945</td>
<td>0.5</td>
<td>87,863</td>
</tr>
<tr>
<td>65 + years</td>
<td>116,555</td>
<td>57,392</td>
<td>49.2</td>
<td>721</td>
<td>0.6</td>
<td>58,475</td>
</tr>
<tr>
<td>Children (6 months-17 years)</td>
<td>338,289</td>
<td>116,656</td>
<td>34.5</td>
<td>4,191</td>
<td>1.2</td>
<td>121,277</td>
</tr>
<tr>
<td>Adults (18 + years)</td>
<td>845,607</td>
<td>276,778</td>
<td>32.7</td>
<td>3,079</td>
<td>0.4</td>
<td>281,124</td>
</tr>
<tr>
<td>All (6 months +)</td>
<td>1,183,896</td>
<td>393,434</td>
<td>33.2</td>
<td>7,270</td>
<td>0.6</td>
<td>402,401</td>
</tr>
</tbody>
</table>

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* Limited to sites that exported both doses administered and active clinical population data.

** Active Clinical is defined as patients who have had at least 2 visits in the last 3 years.

*** Number of unique patients with at least 1 dose.

**** Total # Doses Administered = All doses administered to patients including doses not included in coverage calculation due to lack of Active Clinical Population data.
All IHS Areas
Cumulative One-Dose Seasonal Influenza Vaccine Coverage
06/29/14 to 1/17/15
Active Clinical Population

- Adults (18 + years)
- All (6 months +)
- Children (6 months-17 years)
Seasonal Influenza Vaccine Coverage
6 Months and older
Active Clinical User
Week 3

% Vaccinated:
- ALASKA: 19.8%
- ABQ: 36.5%
- BEM: 22.1%
- BIL: 35.0%
- CAO: 23.7%
- CPA: 32.4%
- NAV: 42.8%
- NASH: 33.9%
- OKC: 32.5%
- PHX: 32.2%
- POR: 39.6%
- TUC: 43.6%
- NATIONAL: 33.2%
Summary

• ILI activity is high in IHS and is likely to continue for several weeks
• While vaccine effectiveness may be reduced against drifted H3N2 strains, vaccine remains the most effective tool to prevent influenza
  – Currently only 33% of IHS patient population has been vaccinated
• Early antiviral treatment is an important adjunct to vaccination
Pharmacy Based Immunization Services

Noah Argual, Pharm.D.
San Carlos Service Unit
San Carlos, Arizona
January 21, 2015
Topics

• Discuss pharmacy staffing, workflow and duties

• Present pharmacy based immunization clinic vaccinations administered, goals, and barriers

• Discuss the impact of pharmacy immunizations on the number of immunizations provided
Pharmacy staff and clinics

- 9 pharmacists and 3 pharmacy technicians
- Pharmacy Based Diabetes Care Clinic
  - 2 pharmacists
- Pharmacy Based Anticoagulation Clinic
  - 2 pharmacists
- Pharmacy Based Immunization Clinic
  - 7 pharmacists, all are certified
Pharmacy Work Flow And duties

• Pharmacists or pharmacy technicians offer flu shots to any patient > age 18
  – Non-native Commissioned Corps officers and civilian employees are eligible to receive immunizations
• Flu shot flyers on pharmacy window, outpatient clinic bulletin board
• Flu shots are available from 8:00AM to 5:00PM, M-F
• Designated pharmacist for immunization only
• Pharmacists rotate weekly
Pharmacy based immunization goals

• Identify patients
• Make vaccines accessible
• Utilize vaccine schedules
• Educate and motivate patients
• Increase immunization rates
• Reduce preventable diseases
• Reduce appointment demand
PRESCRIPTIVE AUTHORITY/STANDING ORDERS

• Pharmacist providers may:
  – prescribe and administer any vaccine as recommended by the CDC/ACIP
Vaccines Provided by pharmacists

- Influenza vaccine
- Pneumococcal vaccine
- Varicella vaccine
- Herpes zoster vaccine
- Hepatitis A vaccine
- Hepatitis B vaccine
- Injectable poliovirus vaccine (IPV)
- Meningococcal vaccine
- Haemophilus influenza type B vaccine (HIB)
- Human papillomavirus vaccine (HPV)
- Measles, mumps, and rubella vaccine (MMR)
- Tetanus, diphtheria with or without pertussis vaccines (e.g. Tdap, Td)
Barriers that we need to overcome

• Patient Refusal
  – Flu shot makes me sick
  – Flu shot does not work
  – I don’t have time, I will come back next week

• Heavy Workload
  – Improve timely documentation
  – Improve documentation of refusals

• Limited Space
Scheduling, follow-up and Billing

- No appointment needed
- Walk-in only, small percentage are referred from the MDs
- HPV or HepB follow up needs improvement
- Medicare and Medicaid are billed for eligible patients
- Private insurances are billed for both native and non-native beneficiaries
Alternative SCSU Immunization locations

- Public Health Nurses
- Outpatient Treatment Room
- Emergency Department
- Community Outreach- Apache Gold Casino
San Carlos Service Unit Pharmacy Based Immunization Clinic

IMMUNIZATION DATA
Total pharmacy immunizations by age group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 yrs</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-18 yrs</td>
<td></td>
<td></td>
<td>1</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>19-45 yrs</td>
<td>1</td>
<td>1</td>
<td>151</td>
<td>341</td>
<td>450</td>
</tr>
<tr>
<td>46-64 yrs</td>
<td>4</td>
<td>94</td>
<td>277</td>
<td>543</td>
<td></td>
</tr>
<tr>
<td>65-69 yrs</td>
<td>3</td>
<td>2</td>
<td>37</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>70-79 yrs</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>35</td>
<td>76</td>
</tr>
<tr>
<td>80+</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2</strong></td>
<td><strong>14</strong></td>
<td><strong>250</strong></td>
<td><strong>701</strong></td>
<td><strong>1,211</strong></td>
</tr>
</tbody>
</table>
Pharmacy immunizations by age group
### Pharmacy based immunization clinic

<table>
<thead>
<tr>
<th>Immunization</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTAP</td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>DTAP-HEP B-IPV</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Hep A</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hep A and Hep B</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hep B</td>
<td></td>
<td></td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>HIB</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td></td>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza</td>
<td>2</td>
<td>9</td>
<td>232</td>
<td>428</td>
<td>867</td>
</tr>
<tr>
<td>Meningococcal</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>1</td>
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<tr>
<td>MMR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>1</td>
<td>4</td>
<td>52</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Rabies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Td (Tdap)</td>
<td>1</td>
<td>10</td>
<td>157</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster</td>
<td></td>
<td>4</td>
<td>50</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2</strong></td>
<td><strong>14</strong></td>
<td><strong>250</strong></td>
<td><strong>701</strong></td>
<td><strong>1,211</strong></td>
</tr>
</tbody>
</table>
Pharmacy based immunization clinic
San Carlos Service Unit Influenza Data

IMMUNIZATION DATA
SCSU Total Flu Vaccinations For Flu Seasons 2013 AND 2014

San Carlos Service Unit
Flu Vaccination

<table>
<thead>
<tr>
<th></th>
<th>Total Patient Population</th>
<th>Total Flu Vaccinations</th>
<th>% of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 Flu Season</td>
<td>10373</td>
<td>3370</td>
<td>32</td>
</tr>
<tr>
<td>1/2/2015</td>
<td>10217</td>
<td>2592</td>
<td>25</td>
</tr>
</tbody>
</table>
2014 Flu Season vaccination report as of January 2, 2015

San Carlos Service Unit
Flu Vaccinations
1/2/2015

<table>
<thead>
<tr>
<th>Age Group</th>
<th># Vaccinated</th>
<th>% Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-23 m</td>
<td>73</td>
<td>27</td>
</tr>
<tr>
<td>2-4 y</td>
<td>138</td>
<td>17</td>
</tr>
<tr>
<td>5-17 y</td>
<td>524</td>
<td>23</td>
</tr>
<tr>
<td>18-49 y</td>
<td>1226</td>
<td>25</td>
</tr>
<tr>
<td>*18-49 hr</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>50-64 y</td>
<td>393</td>
<td>28</td>
</tr>
<tr>
<td>65+ y</td>
<td>238</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>2592</td>
<td>25</td>
</tr>
</tbody>
</table>
In SUMMARY

• 87% of SCSU pharmacists participate in the Immunization Clinic to meet the Healthy People 2020 goal of > 90%
• Barriers exist but are not insurmountable
• Between 2012 and 2014, pharmacy based immunizations have increased 484%
• 2014 flu season immunization rates average about 25% across all age groups except the 2-4, <20% and >65, almost 40%
• Pharmacy based immunization clinics help increase immunization rates and decrease burden on other health care providers