Improving rates of HIV screening in a Midwest primary care practice using an electronic clinical decision support system: A Quality Improvement Project

Jasmine R Marcelin, M.D.1, Eugene M Tan, M.D.2, Alberto Marcelin, M.D.2, Marianne Scheielt, Praveen Ramu, Ronald Hankey, Pritesh Keriya, Majken Wingo MD5, Stacey Rizza, MD, Fredrick North, MD, and Rajeve Chaudhry, MBBS, MPH.2
Division of Infectious Diseases-Department of Internal Medicine, Department of Family Medicine
Mayo Clinic, Rochester, MN

Abstract

Background:
The rate of universal human immunodeficiency virus (HIV) screening remains low in many clinical practices despite published guidelines recommending screening for all patients between ages 13-65. A quality improvement project was designed to increase the rates of HIV screening of patients ages 18-65 in Primary Care Internal Medicine by 10% in 6 months.

Methods:
The study was conducted in Rochester, Minnesota from January 1, 2014 to December 31, 2014. Baseline primary care practice HIV screening data were acquired from January 1, 2014 to April 30, 2014. We surveyed providers and educated them about current CDC recommended screening guidelines. We then added an HIV screening alert to an existing electronic clinical decision support tool and post-intervention HIV screening rates were obtained from May 1, 2014 to December 31, 2014.

Results:
6,070 and 6,526 patients were seen before and after the intervention, respectively. 1.80% of eligible patients and 3.48% of eligible patients were screened prior to and after the intervention, respectively (difference of -1.54% [-2.1%, -0.99%]; p=0.001). OR 1.89 (1.50, 2.36). Prior to the intervention, African Americans were more likely to have been screened for HIV (OR 3.96 [2.22, 6.71]; p=0.001) than Whites, but this effect decreased significantly after the intervention (OR 1.49 [1.12, 1.31]; p=0.03).

Conclusions:
These data showed that an electronic alert almost doubled the rates of universal HIV screening by primary care providers in a Midwestern practice and reduced racial disparities, but there is still significant room for improvement in universal screening practices.

Graphical display of changes in HIV screening after implementation of GDMS prompt intervention

HIV screening in PCIM in 2014

GDMS prompt added

Comparison of overall HIV screening rates and by demographic group before and after GDMS intervention

<table>
<thead>
<tr>
<th>Demographic Category</th>
<th>Pre intervention HIV screening (%)</th>
<th>Post intervention HIV screening (%)</th>
<th>Odds Ratio (95% CI)</th>
<th>p value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All eligible</td>
<td>1.80</td>
<td>3.34</td>
<td>1.99 (1.50, 2.62)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sex Female</td>
<td>1.62</td>
<td>3.06</td>
<td>1.28 (1.18, 2.83)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sex Male</td>
<td>2.03</td>
<td>3.68</td>
<td>1.84 (1.32, 2.58)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age 18-24</td>
<td>1.42</td>
<td>6.14</td>
<td>4.54 (4.13, 16.15)</td>
<td>0.005</td>
</tr>
<tr>
<td>Age 25-39</td>
<td>4.03</td>
<td>4.65</td>
<td>1.21 (1.03, 1.80)</td>
<td>0.31</td>
</tr>
<tr>
<td>Age 40-49</td>
<td>1.47</td>
<td>2.51</td>
<td>1.73 (1.94, 3.18)</td>
<td>0.07</td>
</tr>
<tr>
<td>Age 50+</td>
<td>1.13</td>
<td>2.63</td>
<td>2.54 (1.76, 3.68)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Race: White</td>
<td>1.47</td>
<td>3.02</td>
<td>2.09 (1.59, 2.70)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Race: AA</td>
<td>5.44</td>
<td>5.57</td>
<td>1.03 (1.51, 2.09)</td>
<td>0.94</td>
</tr>
<tr>
<td>Race: Asian</td>
<td>1.29</td>
<td>5.04</td>
<td>4.05 (1.35, 12.0)</td>
<td>0.005</td>
</tr>
<tr>
<td>Race: Othera</td>
<td>3.57</td>
<td>4.20</td>
<td>1.18 (0.48, 2.93)</td>
<td>0.71</td>
</tr>
<tr>
<td>Race: Unknown</td>
<td>4.88</td>
<td>6.54</td>
<td>1.37 (0.39, 4.82)</td>
<td>0.63</td>
</tr>
</tbody>
</table>

*Likelihood ratio test; 95% confidence interval

Pro- and post-intervention rates of HIV screening by demographic group

Pre-intervention survey

If you have not seen every eligible patient, what factors led to your decision?

- Don’t remember to discuss screening
- Not familiar with current screening guidelines
- Don’t believe in screening “low risk” patients
- Patients refuse HIV screening
- Unsure of prior screening
- Unsure if consent is required
- Other

Conclusions

- Electronic prompt increased screening by 2-fold
- Absolute numbers low; therefore opportunities for improvement still exist
- Upgrades, institution implementation and recordable metrics may improve screening rates

References