The Patient-Clinician Encounter in a Pharmacogenomics Clinic in a Community Health System

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NorthShore University HealthSystem

- Four community hospitals
  - 828 beds
- Medical Group
  - 100+ offices
- 42,000 admissions/year
- 120,000 ER visits/year
- Integrated inpatient and outpatient EHR
Two Delivery Methods

Pharmacogenomics in-clinic testing

Provider-ordered direct access in-home testing

Results provided to patient and available in EHR for provider

PGx Clinic team available for questions
NorthShore’s Pharmacogenomics Clinic

Goal: Meet the current pharmacogenomics needs of the community, both providers and patients

Visit 1
- Benefits
- Limitations
- Risks
- Cost

Visit 2
- Review results
In-home Testing

Physician orders PGx testing

Educational video and instructions - online portal

Patient completes PGx kit at home

Results available to physicians in EHR

Results mailed to patient

Provider and clinical PGx team for follow-up
Departments utilizing PGx service in 2017:

- Psychiatry: 18%
- Primary Care: 52%
- Primary Care: 3%
- Neurology: 1%
- Rheumatology: 7%
- Immunology: 9%
- Pain Management: 5%
- Pediatrics: 5%
- Infectious Disease: 5%
NorthShore’s Patient Study

Purpose:
- To assess patient perceptions and utilization of PGx testing
- To determine if the delivery method was important
Patient Study

- 57 Patients (37% response rate)
- 44 question online survey

Key Survey Domains
- Pre-testing decisions
- PGx testing experience
- Post-testing feelings and outcomes
- Perceived benefits/concerns

Demographics

- Female (73%)
- Non-Hispanic/Latino (96%)
- White (98%)
- Some college education or more (92%)
Summary

- 60% completed testing via direct access testing kits
- The “most valuable outcome” reported was decreased trial-and-error in prescribing medications (48%)
- Findings were not statistically different between the two testing modality groups (p values 0.19-0.97)
<table>
<thead>
<tr>
<th>Survey statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I discussed my pharmacogenomics test results with my healthcare provider. (n=57)</td>
<td>36 (63.2%)</td>
<td>21 (36.8%)</td>
</tr>
<tr>
<td>After discussing results with your healthcare provider, did you look up additional information? (n=35)</td>
<td>14 (40.0%)</td>
<td>21 (60.0%)</td>
</tr>
<tr>
<td>I would like additional follow-up from my healthcare provider to discuss my pharmacogenomics test results. (n=56)</td>
<td>20 (35.7%)</td>
<td>36 (64.3%)</td>
</tr>
</tbody>
</table>
## Patient actions post-results disclosure

<table>
<thead>
<tr>
<th>Survey Statement</th>
<th>Yes</th>
<th>No</th>
<th>Plan to do so</th>
</tr>
</thead>
<tbody>
<tr>
<td>I made a change in taking a current medication (such as discontinued it, or made a change in dose) with the guidance of my healthcare provider. (n=54)</td>
<td>16 (29.6%)</td>
<td>34 (63.0%)</td>
<td>4 (7.4%)</td>
</tr>
<tr>
<td>I made a change in taking a current medication (such as discontinued it, or made a change in dose) on my own without the guidance of my healthcare provider. (n=55)</td>
<td>7 (12.7%)</td>
<td>48 (87.3%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>I started a new medication. (n=55)</td>
<td>10 (18.2%)</td>
<td>41 (74.5%)</td>
<td>4 (7.3%)</td>
</tr>
</tbody>
</table>
Patient reactions to testing

<table>
<thead>
<tr>
<th>Survey Statement</th>
<th>SA</th>
<th>SWA</th>
<th>NAD</th>
<th>SWD</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found pharmacogenomics testing to be helpful to me in my health care decision-making at this time. (n=57)</td>
<td>16 (28.1%)</td>
<td>18 (31.6%)</td>
<td>8 (14.0%)</td>
<td>9 (15.8%)</td>
<td>6 (10.5%)</td>
</tr>
<tr>
<td>I am more likely to take medications prescribed by my healthcare provider. (n=56)</td>
<td>16 (28.6%)</td>
<td>16 (28.6%)</td>
<td>18 (32.1%)</td>
<td>5 (8.9%)</td>
<td>1 (1.8%)</td>
</tr>
</tbody>
</table>

SA= Strongly agree        SWA= Somewhat agree      NAD= Neither agree or disagree
SWD= Somewhat disagree     SD= Strongly disagree
## Patient reactions to testing

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</tr>
</thead>
<tbody>
<tr>
<td><em>I feel more confident that medication(s) prescribed to me will not cause side</em></td>
<td>24 (42.9%)</td>
<td>17 (30.4%)</td>
<td>7 (12.5%)</td>
<td>6 (10.7%)</td>
<td>2 (3.6%)</td>
</tr>
<tr>
<td><em>effects and/or will help my condition, compared to past prescriptions I’ve</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>received without testing. (n=56)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><em>I feel more validated about my medication experiences. (n=56)</em></td>
<td>30 (53.6%)</td>
<td>9 (16.1%)</td>
<td>10 (17.9%)</td>
<td>7 (12.5%)</td>
<td>0 (0%)</td>
</tr>
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Patient Quotes

• “Having the information in the beginning of treatment would have really saved on cost, time, and shortened my treatment plan. I think that more education about these tests needs to be passed on to providers and encouraged to order.”

• “For 6 months, I kept telling one of my doctors that the medicine he had prescribed for me wasn't working for me. After reading the report, he said, ‘Oh, you're right! It doesn't work for you.’ It took this testing for him to finally believe me.”
Conclusion

• In-clinic vs. In-home PGx testing service delivery in our population revealed similar patient outcomes

• Feedback was used to implement changes, including the development of new educational resources for patients and providers

• Participants in this study provided key insights into how they perceived and used their PGx test result information