The High Risk Patient Monitoring Project: Nursing Case Management and the HIV Care Continuum

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Summary and Key Findings
- We developed a method for assessing risk for poor treatment outcomes among patients with HIV.
- We assessed risk for 875 patients; 189 were identified as High Risk (HR).
- 100% of HR patients were referred for adherence counseling and case management; 79% have received adherence counseling.
- Our risk assessments predicted appointment attendance. Among a subset of patients analyzed, high risk patients had almost 10 times the odds of missing appointments compared to low risk patients.1
- Results show that our risk assessments can identify patients who are at risk for missing visits.

Background
The HIV Care Continuum2 (also called the Treatment Cascade) spans from diagnosis to successful treatment with antiretroviral therapy (ART) (Figure 1). National trends show that poor outcomes impact the health of the HIV+ population as well as HIV transmission.3 For example, missing clinic visits is associated with increased mortality risk and uncontrolled viremia among HIV-infected patients.4,5 For these reasons, the National HIV/AIDS Strategy includes goals to increase rates of retention in care and viral load suppression among the HIV+ population5 and treatment guidelines now recommend monitoring retention in care6. Interventions to improve appointment attendance and adherence among at-risk patients are needed.

Project Aims and Outcomes
1. To develop and implement an evidence-based method for determining patients’ risk for uncontrolled viremia and/or poor retention in care and to link HR patients to intensive nursing case management and adherence counseling.
2. To increase the number of HR patients with nondetectable VL and to minimize gaps in their care.

Methods

Interventions

1. Risk assessments: A previously-published tool predicts risk of virologic failure in the subsequent year.7 We modified this tool, which uses 7 criteria to stratify patients into 3 groups based on risk (Table 1). A nurse case manager (RN-CM) reviewed charts prior to scheduled appointments to determine patients’ risk prediction tool (RPT) scores. Patients with VL >200 copies/mL were eligible.
2. Individual-level intervention: Patients who met the RPT criteria for “high risk” (Table 1) were referred for multiple adherence counseling sessions with a RN-CM or clinical pharmacist. Adherence counseling included: needs assessment, identification of barriers to adherence, problem solving, med organization with bubble-packing and pill boxes, referral for financial assistance with drug coverage/copays. Mental health and social work referrals were made as needed.
3. Population-level intervention: HR patients were added to a panel for routine assessments of engagement in care. When a patient needed an appointment, the RN-CM attempted to reach him or her if a clinic staff member had not tried to do so within the previous 30 days. If the RN-CM was unable to reach the patient, she tried again in 4-6 weeks. When patients’ phones were disconnected, letters were sent to their homes. In addition, the RN-CM received automatic email notifications when HR patients were admitted to VUMC.

Table 1. Risk Prediction Tool (RPT)

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<thead>
<tr>
<th>Points</th>
<th>For each item, Yes = 1</th>
<th>No = 0</th>
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<tbody>
<tr>
<td>1. VL &gt; 200 copies/mL</td>
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<td>2. CD4 &lt; 100 cells/mm³</td>
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<td>3. Two or more nos in previous 12 months</td>
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<td>4. Heavy ART exposure: Prior exposure to NNRTI, NRTI, and PI</td>
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<td>5. Active substance abuse</td>
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<td>6. Prior virologic failure</td>
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<td>7. Poor adherence to medication</td>
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Results of logistic regression for predicting appointment attendance (n=510). Model adjusted for all variables in figure. In adjusted model Black race, medium risk, and high risk each remained independently associated with missing the next appointment.

Results
From August 2013-October 2014, we assessed risk for 875 patients. Of these, 211 met criteria for HR, of which 10 died, 6 transferred care, and 7 were lost to follow up.

Among the remaining 189 HR patients, 79% have completed at least one face-to-face adherence counseling session with a RN-CM or clinical pharmacist.

During follow-up monitoring of the HR panel, 352 chart reviews indicated that the patient was overdue for appointment but did not have a visit scheduled. A total of 282 attempts (225 phone calls, 46 letters, 11 MHAV messages) were made to contact patients who needed appointments.

Additional time is needed to determine possible effects on VL and retention in care.

Association with appointment attendance
Closely monitoring the HR patients allowed clinicians to identify problematic trends. After observing high no-show rates among HR patients, we obtained IRB approval to more closely examine a subset of the project’s data (n = 510 patients assessed from Aug 2013-May 2014)8.

Logistic regression was used to model the associations between multiple variables and appointment attendance (Figure 2). In the adjusted model, medium or high RPT scores as well as Black non-Hispanic race remained independently associated with missing the next appointment. Compared to low scores, high scores were associated with 9.51 increased odds of missing the next appointment (95% CI 4.56-19.83, p-value<0.001) and medium scores were associated with 3.94 increased odds of missing the next appointment (95% CI 2.14-7.25, p-value<0.001)1. Black, non-Hispanic race was associated with 2.45 increased odds of missing the next appointment (95% CI 1.62-3.72, p-value<0.0001)1.

Conclusion
We developed and implemented an evidence-based method for assessing risk of poor health outcomes among patients with uncontrolled viremia. Doing so has allowed us to provide focused case management to patients who are most in need of added support. Our modified RPT can be used to identify patients who are at risk for missing appointments at the clinic, which can support interventions to improve engagement in care.

References