Case History:
- A 31 year old RhD negative, pregnant female presented to UC-Davis Medical Center in December 2014 for delivery at full term gestational age
- She received a 300ug RhIg immune prophylaxis injection in September 2014 at 28 weeks gestational age
- However, her pre-delivery antibody screen was negative (Figure 1E)

Problem:
A Negative Antibody Screen Logically Indicates Prophylactic RhIg is No Longer Present in the Patient’s Plasma

DOES THIS PATIENT REQUIRE ADDITIONAL RHIG ADMINISTRATION PRE-DELIVERY?

Strategy for Change:
- Collect relevant data
- Ask pertinent questions
- Search published literature
- Consult national guidelines

Measurement of Improvement:
- Cohorts were collected (Table 1) with inclusion criteria:
  - RhD negative women with singleton pregnancies
  - Documented RhIg administration in the UCDHS
  - No pregnancy complications requiring additional RhIg
  - Presented to UCDMC at full term gestational age for delivery

<table>
<thead>
<tr>
<th>Rh negative Mothers Carrying Rh positive babies</th>
<th>N = 67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Antibody Screen at Delivery - Number (percent)</td>
<td>40 (60)</td>
</tr>
<tr>
<td>Average Days between 28 week RhIg and Delivery (weeks)</td>
<td>85.6 (12.2)</td>
</tr>
<tr>
<td>Follow up Antibody Screens Available - Number (percent)</td>
<td>9 (13)</td>
</tr>
<tr>
<td>Evidence of RhD sensitization on follow up testing (percent)</td>
<td>0 (0)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Rh negative Mothers Carrying Rh negative Babies</th>
<th>N = 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Antibody Screen at Delivery - Number (percent)</td>
<td>15 (53.5)</td>
</tr>
<tr>
<td>Average Days between 28 week RhIg and Delivery (weeks)</td>
<td>87.4 (12.5)</td>
</tr>
<tr>
<td>Positive Antibody Screen at Delivery - Number (percent)</td>
<td>13 (46.5)</td>
</tr>
<tr>
<td>Average Days between 28 week RhIg and Delivery (weeks)</td>
<td>79.6 (11.4)</td>
</tr>
</tbody>
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Table 1: Characteristics of UCDHS Cohorts Analyzed

Lessons Learned:
- Testing methods vary in sensitivity and formularies vary in average duration (Figure 3)
- Duration of RhIg detection by gel testing is indirectly related to BMI (Figure 4)

Conclusions:
- Women with an elevated BMI may require a higher dose of RhIg
- National guidelines do not currently recommend RhIg dosing by weight
- A negative antibody screen pre-delivery does not definitively indicate lack of protection by the 28 week RhIg dose
- 23% of women delivering Rh positive babies with negative antibody screens pre-delivery had follow up blood bank testing available
- None were sensitized to RhD

National Guidelines:
- ACOG
  - The RhD negative woman who is not RhD-alloimmunized should receive anti-D immune globulin at approximately 28 weeks of gestation
- AABB Standard 5.30.2
  - Women who are pregnant should be considered for Rh immune globulin administration when all of the following apply:
    - The woman’s test for D antigen is negative
    - The woman is not known to be actively immunized to the D antigen
    - The RhD type of the fetus/infant is unknown

References: