Tracking in Arnhem Land – On the Hunt for Hepatitis B Virus

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Disclosure of interest

Nothing to disclose
Background

• Chronic hepatitis B infection (CHB) is endemic in Indigenous communities of the NT

• Estimated prevalence of 3-12%

• Significant numbers of people who have never undergone testing and whose sero-status remains unknown

1. Schultz R et al. Hepatitis B prevalence and prevention: antenatal screening and protection of infants at risk in the NT
2. Carroll E et al. Screening for hepatitis B in East Arnhem Land: a high prevalence of chronic infection despite incomplete screening.
Aim

Improve the outcomes of people living with CHB in the NT, by

1. Increasing the number of people living with CHB engaged in care, monitoring and treatment

2. Identifying and following up all non-immune people and offering vaccination

3. Increasing awareness and reducing stigma

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Aim

• Determine whether a data merging process, using available electronic sources, can be used to accurately assign Hepatitis B sero-status to all NT indigenous people

• Add these sero-codes to individual records on electronic health record

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Method: Part 1 – Data Merge

- Primary Care Information System (PCIS) data
  - Demographics
  - Hepatitis B markers (Westerns diagnostic pathology data)
  - Immunisations since 2008

- Royal Darwin Hospital (RDH) data
  - Hepatitis B markers since 1998 (Territory pathology data)

- NT Immunisation Register data hepatitis B vaccinations since 1990

Method: Part 1 – Data Merge

- The merge was based on Hospital Record Number as the unique identifier

- The latest record for each parameter was used

- A coding program was then run to give a “hep B status” code based on the combination of vaccination record and serology.
# Results: Part 1 – Data Merge

Table 1: Summary of data merge sero-codes for all Top End PCIS communities (26 communities)

<table>
<thead>
<tr>
<th>Code</th>
<th>No</th>
<th>% of populations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1200</td>
<td>6.2%</td>
</tr>
<tr>
<td>2</td>
<td>7567</td>
<td>39.4%</td>
</tr>
<tr>
<td>3 &amp; 4</td>
<td>574</td>
<td>3%</td>
</tr>
<tr>
<td>5</td>
<td>1869</td>
<td>9.7%</td>
</tr>
<tr>
<td>6</td>
<td>292</td>
<td>1.5%</td>
</tr>
<tr>
<td>8 &amp; 77</td>
<td>6014</td>
<td>31%</td>
</tr>
<tr>
<td>88</td>
<td>1650</td>
<td>8.6%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19,283</td>
<td>40.2%</td>
</tr>
</tbody>
</table>

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Method: Part 2 – Arnhem land sero-coding

• 5 communities in Arnhem land, total population 6,728

• Project nurse recruited and trained

• Standardised messages with specific instructions and recall developed

Method: Part 2 – Arnhem land serocoding

• Initial quality assurance exercise on 200 clients;
  • 16.2% inaccuracy on the merged data codes

• Revised data extraction process – further 200 clients;
  • 16.7% inaccuracy detected

• Data merge abandoned: manual chart review initiated
Results

Table 2: Disagreement rate, per data merge code/sero-code for ATSI population of 5 Arnhem Land communities, after individually reviewing each client against all data sources

<table>
<thead>
<tr>
<th>Hepatitis B Status</th>
<th>% disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATSI population</td>
<td>5947</td>
</tr>
<tr>
<td>Code 1: Non Immune</td>
<td>143/219</td>
</tr>
<tr>
<td><strong>Code 2: Fully Vaccinated</strong></td>
<td>4/2736</td>
</tr>
<tr>
<td>Code 3 &amp; 4 Needs 1 or 2 doses</td>
<td>226/274</td>
</tr>
<tr>
<td><strong>Code 5: Immune by Exposure</strong></td>
<td>3/765</td>
</tr>
<tr>
<td>Code 6: Chronic Infection</td>
<td>0/127</td>
</tr>
<tr>
<td>Code 8 &amp; 77: Insufficient data</td>
<td>672/1047</td>
</tr>
<tr>
<td>Code 88: Presumed Immunised</td>
<td>203/660</td>
</tr>
<tr>
<td><strong>TOTAL ERROR RATE</strong></td>
<td><strong>1237/5974</strong></td>
</tr>
</tbody>
</table>

Table 3: Hepatitis B sero-code, per data merge code/sero-status ATSI population of 5 Arnhem Land communities, using PCIS query group search

<table>
<thead>
<tr>
<th>Hepatitis B Status</th>
<th>Total</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATSI population</td>
<td>5353</td>
<td></td>
</tr>
<tr>
<td>Hep B Fully Vaccinated</td>
<td>3565</td>
<td>67%</td>
</tr>
<tr>
<td>Hep B Immune by Exposure</td>
<td>888</td>
<td>17%</td>
</tr>
<tr>
<td>Hep B Infected ON Treatment</td>
<td>11</td>
<td>0.2%</td>
</tr>
<tr>
<td>Hep B Infected NOT on Treatment</td>
<td>112</td>
<td>2%</td>
</tr>
<tr>
<td>Hep B Non-immune</td>
<td>214</td>
<td>4%</td>
</tr>
<tr>
<td>No data</td>
<td>562</td>
<td>10%</td>
</tr>
<tr>
<td><strong>TOTAL (with serocode):</strong></td>
<td><strong>4791</strong></td>
<td><strong>90%</strong></td>
</tr>
<tr>
<td><strong>TOTAL population who require follow up</strong></td>
<td>776</td>
<td>14%</td>
</tr>
</tbody>
</table>
Discussion

• Education opportunities were identified
  • S100 Prescriber training, includes nurses and Aboriginal Health Practitioners as part of Primary Health Care education
  • About giving vaccines

• Resource implication to action recalls and provide better CHB care is a challenge in remote context

• Partner with communities to ensure culturally appropriate approaches to care and increasing awareness


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Conclusions

• The data merge inaccuracy raises issues for data linkage

• Highlights problems with the quality of data in each system

• NT remain committed to the hunt;
  • finding all CHB client and engaging in care
  • increasing awareness and reducing stigma
Acknowledgments

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Matthew Thalanany - Centre for Disease Control
Christine Connors - Top End Health Service

All the Remote Medical Practitioners, Nurses and Aboriginal Health Practitioners actioning the recalls

References

Thank you

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