Background

The initial method for collecting cryoglobulin samples was difficult to standardise and control. The laboratory was re-evaluating assays to determine whether they met ISO 15189:2012 standards. Preliminary work indicated that the temperature of cryoglobulin samples fluctuated during the sample collection process from the wards and Phlebotomy clinic, transportation to the laboratory and the sample preparation stages within the laboratory.

The Brief

- To modify the current process to keep the temperature of the samples ≥ 37°C from collection to separation.
- Keep the process as straight forward and practical as possible for a busy laboratory.

Optioneering

Create a Transport Method to Keep the Samples ≥ 37°C from Collection until Receipt in the Laboratory.

Verification of Equipment

To ensure the new equipment performed to the required specifications outlined in the brief, the following investigations were performed:

Table 1 – Investigation to ensure samples within the new heat storage flasks were ≥ 37°C from collection to receipt by the laboratory. Both serum and EDTA plasma were tested.

<table>
<thead>
<tr>
<th>Time (mins)</th>
<th>Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>10</td>
<td>38</td>
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</table>

Table 2 – Investigation to ensure the sample temperature remained ≥ 37°C for the duration of centrifugation.

By setting the centrifuge to 42°C it ensured the samples remained above 37°C for the 10 minute centrifugation time. The temperature of the incubator is continuously recorded and reviewed daily using COMARK. The temperature of the incubator is set to 40°C to ensure the flasks are thoroughly warmed before use.

Implementation

Three flasks are kept in the incubator in Phlebotomy for outpatient requests. The flasks are replenished with empty blood tubes and returned to the incubator by laboratory staff who check the incubator and rotate the flasks.

Ward staff collect a flask from the laboratory incubator; these are signed out by laboratory staff who check the incubator and rotate the flasks.

All the flasks are colour-coded and numbered to ensure they are rotated appropriately and are returned to the correct locations after use.

Attached to all the flasks are information sheets outlining the new collection and transportation procedure.

Conclusion

The new flasks and equipment have greatly improved the laboratory service we offer for cryoglobulin screening. They have eliminated the need for ward and Phlebotomy staff to use water to transport the samples to the laboratory which often were inappropriately warmed and occasionally rejected as unsuitable.

Since the introduction of the pre-heated storage flasks, no samples have been rejected or repeated as a result of poor temperature regulation.

References


Laboratory testing for cryoglobulins, Motyckova et al. Am. J. Hematology

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