Forming Quantitative Questions – The PICO(T) Model

Quantitative questions aim to discover cause and effect relationships by comparing two or more individuals or groups based on differing outcomes associated with exposures or interventions.

**PICO(T) Model Template**

A quantitative approach can answer many different types of questions, but all can be formatted by following the PICO(T) Model outlined below:

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Etiology</th>
<th>Diagnosis</th>
<th>Prevention</th>
<th>Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/E – Intervention OR Exposure</td>
<td>Specific drug or procedural intervention</td>
<td>Exposure to certain conditions or risk behaviour</td>
<td>Specific diagnostic tool or procedure</td>
<td>Specific drug or procedural intervention</td>
</tr>
<tr>
<td>C – Comparator</td>
<td>Alternative drug or procedural intervention</td>
<td>Absence of certain conditions or risk behaviour</td>
<td>Alternative diagnostic tool or procedure</td>
<td>Alternative drug or procedural intervention</td>
</tr>
<tr>
<td>O - Outcome</td>
<td>Management of disease/condition</td>
<td>Development of disease/condition</td>
<td>Effective diagnosis of condition</td>
<td>Prevention of disease/condition</td>
</tr>
<tr>
<td>T – Time Frame</td>
<td>The time it takes to demonstrate an outcome OR the period in which patients are observed. Ex. The six-months following childbirth.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Therapy**

In **[P]**, do/does **[I]** result in **[O]** when compared with **[C]** over **[T]**?

E.g.) In nursing home residents with osteoporosis, do hip protectors result in fewer injuries from slips, trips, and falls when compared with standard osteoporosis drug therapy over the course of their stay?

**Etiology**

Are **[P]** with **[I]** over **[T]** more likely to **[O]** when compared with **[C]**?

E.g.) Are female non-smokers with daily exposure to second-hand smoke over a period of ten years or greater more likely to develop breast cancer when compared with female non-smokers without daily exposure to second-hand smoke?
**Diagnosis**

Is/are ___[I]___ performed on ___[P]___ more effective than ___[C]___ over ___[T]___ in ___[O]___?

E.g.) Are self-reporting interviews and parent reports performed on children aged 5-10 more effective than parent reports alone over a four-week consultation process in diagnosing depression?

**Prevention**

In ___[P]___, do/does ___[I]___ result in ___[O]___ when compared with ___[C]___ over ___[T]___?

E.g.) In emergency room visitors, do hand sanitizing stations result in fewer in-hospital infections when compared with no hand sanitizing stations over a year-long pilot period?

**Prognosis**

Do/does ___[I]___ performed on ___[P]___ lead to ___[O]___ over ___[T]___ compared with ___[C]___?

E.g.) Do regular text message reminders performed on patients recently diagnosed with diabetes lead to a lower occurrence of forgotten insulin doses over the first six months of treatment compared with no reminders?