

## Additional file 5

Additional file 5.pdf

Title: Formula used in the construction of MHSI in four different scenarios

	Step 1	Step 2	Step 3
Scenario I	<p>Arithmetic mean approach</p> $\frac{(ANC1_1 + ANC1_2)}{2} = ANC1$ $\frac{(ANC2_1+ANC2_2+ ANC2_3+ANC2_4+ANC2_5)}{5} = ANC2$ $\frac{(ANC3_1+ANC3_2+ANC3_3)}{3} = ANC3$ $\frac{(INC_1+INC_2+ INC_3+INC_4)}{4} = INC$ $PNC_1 = PNC$	<p>Arithmetic mean approach</p> $\frac{(ANC1 + ANC2+ ANC3)}{3} = ANC$	<p>Arithmetic mean approach</p> $\frac{(ANC + INC+ PNC)}{3} = MHSI$
Scenario II	<p>Arithmetic mean approach</p> $\frac{(ANC1_1 + ANC1_2)}{2} = ANC1$ $\frac{(ANC2_1+ANC2_2+ ANC2_3+ANC2_4+ANC2_5)}{5} = ANC2$ $\frac{(ANC3_1+ANC3_2+ANC3_3)}{3} = ANC3$ $\frac{(INC_1+INC_2+ INC_3+INC_4)}{4} = INC$ $PNC_1 = PNC$	<p>Arithmetic mean approach</p> $\frac{(ANC1 + ANC2+ ANC3)}{3} = ANC$	<p>Geometric mean approach</p> $\sqrt[3]{ANC \times INC \times PNC} = MHSI$
Scenario III	<p>Arithmetic mean approach</p> $\frac{(ANC1_1 + ANC1_2)}{2} = ANC1$ $\frac{(ANC2_1+ANC2_2+ ANC2_3+ANC2_4+ANC2_5)}{5} = ANC2$ $\frac{(ANC3_1+ANC3_2+ANC3_3)}{3} = ANC3$ $\frac{(INC_1+INC_2+ INC_3+INC_4)}{4} = INC$ $PNC_1 = PNC$	<p>Geometric mean approach</p> $\sqrt[3]{ANC1 \times ANC2 \times ANC3} = ANC$	<p>Geometric mean approach</p> $\sqrt[3]{ANC \times INC \times PNC} = MHSI$
Scenario IV	<p>Geometric mean approach</p> $\sqrt[2]{ANC1_1 \times ANC1_2} = ANC1$ $\sqrt[5]{ANC2_1 \times ANC2_2 \times ANC2_3 \times ANC2_4 \times ANC2_5} = ANC2$ $\sqrt[3]{ANC3_1 \times ANC3_2 \times ANC3_3} = ANC3$ $\sqrt[4]{INC_1 \times INC_2 \times INC_3 \times INC_4} = INC$ $PNC_1 = PNC$	<p>Geometric mean approach</p> $\sqrt[3]{ANC1 \times ANC2 \times ANC3} = ANC$	<p>Geometric mean approach</p> $\sqrt[3]{ANC \times INC \times PNC} = MHSI$