Comparing Annual VTE Impact (estimated) across 2nd - 4th Generation Combination Hormonal Contraceptives in the U.S. 2013 - All Users

Analysis calculates the risk for each generation of CHC based on prescription data from IMS Health & CHC Contraception Use Report 2013 - Women (aged 15-44)

### Data Points - Risk Fundamentals

| Exposure Category by Generation of CHC | Estimated Blood Clot incidence (per 10,000 women per year of use) | Number of Women
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Women not using a combined hormonal pill/patch/ring and are not pregnant</td>
<td>About 2 out of 10,000</td>
<td>23,500,000</td>
</tr>
<tr>
<td>1st &amp; 2nd Gen CHC - Progestin Levonorgestrel, Norethisterone, Norgestrel or Norgestimate</td>
<td>About 5-7 out of 10,000</td>
<td>7,800,000</td>
</tr>
<tr>
<td>3rd Gen. CHC - Progestin Etonogestrel (NuvaRing) or Norelgestromin (Patch)</td>
<td>About 6 - 12 out of 10,000</td>
<td>1,000,000</td>
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<tr>
<td>4th Gen. CHC - Progestin Drospirenone (i.e. Yasmin, Yaz) or Desogestrel</td>
<td>About 9 - 12 out of 10,000</td>
<td>2,000,000</td>
</tr>
</tbody>
</table>

### Calculations used to establish risk of VTE, DVT & PE

#### Venous Thromboembolism (VTE) Impact:

Calculation used to estimate the number of women who will develop a VTE due to the increased estrogenic effects of a particular generation of Combined Hormonal Contraceptive (CHC).

\[
\text{VTEs from a particular generation of CHC} = \text{Number of Users of that CHC} \times (\text{EMA Estimated VTE Incidence Rate})
\]

#### Deep Vein Thrombosis (DVT) Impact:

Calculation used to estimate the number of women who will develop DVT due to the increased estrogenic effects of a particular generation of Combined Hormonal Contraceptive (CHC).

\[
\text{DVT from a particular CHC} = \frac{2}{3} \times \text{VTEs from a particular CHC}
\]

#### Pulmonary Embolism (PE) Impact:

Calculation used to estimate the number of women who will develop PE due to the increased estrogenic effects of a particular generation of Combined Hormonal Contraceptive (CHC).

\[
\text{PEs from a particular CHC} = \frac{1}{3} \times \text{VTEs from a particular CHC}
\]

### Mortality rate calculations

- **Pulmonary Embolism (PE):**
  - Mortality rate from PEs is 12%
  - Deaths from PEs for a particular CHC = PEs from a particular CHC * 0.12

- **Deep Vein Thrombosis (DVT):**
  - Mortality rate of DVT is 6%
  - Deaths from DVTs for a particular CHC = DVTs from a particular CHC * 0.06

- **Venous Thromboembolism (VTE):**
  - Mortality rate from PEs for a particular CHC = PEs from a particular CHC * 0.12

### References

4. Individual pill, patch and ring data was sourced from IMS Health’s National Prescription Audit, Hormonal Birth Control Products, May 2001 - Dec 2014, Measures include NRx, TRx, Layout: USCS, Moi, Brand/Generic, Product, Form and Strength

Notes:

- DVT death outcome other than a PE are not included in final totals for discussion as a reliable source for this data has not been found. The final total of VTE related deaths will likely increase from what is currently shown for PE deaths.
- Updated 9/8/2015