**Equations for Pseudo-Bergstrom Model (3 Strain)**

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| **Parameter** | **Description** |
| mX | Rate of hospital entrx |
| μ | Rate of patient turnover in the hopsital |
| τ1 | Rate of treatment for antibiotic class 1 |
| τ2 | Rate of treatment for antibiotic class 2 |
| τ3 | Rate of treatment for antibiotic class 3 |
| γ | Rate of natural recovery |
| β | Rate of Transmission |
| σ | Rate at which individuals leave the hospital environment |
| C1 | Fitness cost of transmission – class 1 |
| C2 | Fitness cost of transmission – class 2 |
| C3 | Fitness cost of transmission – class 3 |
|  | Change in antibiotic usage for class 1 |
|  | Change in antibiotic usage for class 2 |
|  | Change in antibiotic usage for class 3 |