

$$\mathbf{V} = \begin{bmatrix}
 \begin{array}{ccccc}
 & & & & \text{Study 1} \\
 & \sigma_{1p_1}^2 & & & \\
 \sigma_{1p_1} \sigma_{1p_2} \rho_{p1p2} & & \sigma_{1p_2}^2 & & \\
 \sigma_{1p_1} \sigma_{1p_2} \rho_{p2p1} & \sigma_{1p_1} \sigma_{1p_2} \rho_{p2p3} & \sigma_{1p_3}^2 & & \\
 & 0 & 0 & 0 & \text{Study 2} \\
 & & & \sigma_{2p_1}^2 & \\
 & 0 & 0 & 0 & \\
 & 0 & 0 & 0 & \text{Study 3} \\
 & & & & \sigma_{3p_1}^2 \\
 & & & \sigma_{3p_1} \sigma_{3p_2} \rho_{p1p2} & \sigma_{3p_2}^2
 \end{array}
 \end{bmatrix}$$