Notes on calculating combined GAM estimates within the Rapid Assessment Method (RAM)

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PROBIT gives a probability so we look to combining two probabilities:

$$P(GAM_{\text{MUAC}} \cup GAM_{\text{WHZ}}) = P(GAM_{\text{MUAC}}) + P(GAM_{\text{WHZ}})$$

However, the problem is that we do not have `independent` probabilities. We overestimate because the intersection gets counted twice. Therefore we need:

$$P(GAM_{\text{MUAC}} \cup GAM_{\text{WHZ}}) = P(GAM_{\text{MUAC}}) + P(GAM_{\text{WHZ}}) - P(GAM_{\text{MUAC}} \cap GAM_{\text{WHZ}})$$

We have the first two terms but not the third. We can estimate the third term from a 2 by 2 table:

	WHZ < -2	WHZ ≥ -2
MUAC < 125	a	b
MUAC ≥ 125	c	d