To distribute individuals into the specified categories based on these probabilities:

Probabilities:

Probability of being undiagnosed: 0.09

Probability of being diagnosed: 0.91

Probability of being uncontrolled: 0.08

Probability of being controlled: 0.92

Derived Probabilities for the Categories: Using the joint probabilities:

Category 1: Undiagnosed and Uncontrolled:

𝑃

(

Undiagnosed and Uncontrolled

)

=

𝑃

(

Undiagnosed

)

×

𝑃

(

Uncontrolled

)

=

0.09

×

0.08

=

0.0072

P(Undiagnosed and Uncontrolled)=P(Undiagnosed)×P(Uncontrolled)=0.09×0.08=0.0072

Category 2: Diagnosed and Controlled:

𝑃

(

Diagnosed and Controlled

)

=

𝑃

(

Diagnosed

)

×

𝑃

(

Controlled

)

=

0.91

×

0.92

=

0.8372

P(Diagnosed and Controlled)=P(Diagnosed)×P(Controlled)=0.91×0.92=0.8372

Category 3: Diagnosed but Uncontrolled:

𝑃

(

Diagnosed and Uncontrolled

)

=

𝑃

(

Diagnosed

)

×

𝑃

(

Uncontrolled

)

=

0.91

×

0.08

=

0.0728

P(Diagnosed and Uncontrolled)=P(Diagnosed)×P(Uncontrolled)=0.91×0.08=0.0728

These probabilities are normalized as follows:

Category 1:

0.0072

0.0072

+

0.8372

+

0.0728

≈

0.0081

0.0072+0.8372+0.0728

0.0072

​

≈0.0081

Category 2:

0.8372

0.0072

+

0.8372

+

0.0728

≈

0.902

0.0072+0.8372+0.0728

0.8372

​

≈0.902

Category 3:

0.0728

0.0072

+

0.8372

+

0.0728

≈

0.078

0.0072+0.8372+0.0728

0.0728

​

≈0.078

Assigning Individuals: We can use these probabilities to probabilistically assign individuals to the categories.