

Table 9: State variables and their description.

Variable	Description
$S(t)$	The number of susceptible humans at a time t .
$E(t)$	The number of exposed humans at a time t .
$I(t)$	The number of infectious humans at a time t .
$R(t)$	The number of recovered (immune) humans at a time t .
$C(t)$	The number of carriers at a time t .
$B(t)$	The number of <i>Shigella</i> bacteria at a time t .
$\lambda_h(t)$	Human-to-human transmission at time t .
$\lambda_h(t)$	Environment-to-human transmission at time t .