$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Name	Description	Ι	nitial Values
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			GER	USA
$\begin{split} & \sum_{k \in \mathbb{N}^{(N)}(k)} \text{Vaccinated susceptibles who developed partial immunity} \\ & \sum_{k \in \mathbb{N}^{(N)}(k)} \sum_{k \in N$				$\frac{132400000}{198599925}$
$\begin{split} S^{(\Gamma^{(0)}(t)}_{1}(k) & Vaccinated susceptibles who developed ADE \\ S^{(\Lambda DE)}_{1}(t) & Vaccinated susceptibles who developed ADE \\ S^{(\Lambda DE)}_{1}(t) & Vaccinated latently inf. inds. with pending vaccine outcome \\ S^{(\Lambda DE)}_{1}(t) & Vaccinated latently inf. inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated latently inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{2}(t) & Vaccinated latently inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{2}(t) & Vaccinated latently inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{2}(t) & Vaccinated prodromal inds. waiting to be vaccinated ones who failed to immunize \\ S^{(\Gamma^{(1)})}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated prodromal inds. who developed partial immunity \\ S^{(\Lambda DE)}_{2}(t) & Vaccinated fully inf. inds. who developed partial immunity \\ S^{(\Lambda DE)}_{1}(t) & Vaccinated fully inf. inds. who developed Partial immunity \\ S^{(\Lambda DE)}_{1}(t) & Vaccinated fully inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{1}(t) & Vaccinated fully inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{1}(t) & Vaccinated fully inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{1}(t) & Vaccinated fully inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{1}(t) & Vaccinated fully inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{1}(t) & Uaganosed or symptomatic late inf. inds. waiting to be vaccinated \\ S^{(\Gamma^{(1)})}_{1}(t) & Vaccinated late inf. inds. who developed ADE \\ S^{(\Gamma^{(1)})}_{2}(t) $		•		0
$\begin{array}{llllllllllllllllllllllllllllllllllll$	$S^{(NI)}(t)$ $S^{(PI)}(t)$	-		0
$ \begin{array}{c} \sum_{i=1}^{ U } (1) & \text{Latently inf. inds. waiting to be vaccinated} \\ E_{i}^{(U)}(1) & \text{Latently inf. inds. with pending vaccine outcome} \\ E_{i}^{(U)}(1) & \text{Vaccinatel latently inf. inds. who developed partial immunity} \\ E_{i}^{(D)}(1) & \text{Vaccinatel latently inf. inds. who developed ADE \\ \end{array} \\ \begin{array}{c} P_{i}^{(U)}(1) & \text{Vaccinatel latently inf. inds. who developed ADE \\ \end{array} \\ \begin{array}{c} P_{i}^{(U)}(1) & \text{Vaccinatel prodromal inds. with pending vaccine outcome} \\ P_{i}^{(U)}(1) & \text{Vaccinatel prodromal inds. who developed partial immunity} \\ \end{array} \\ \begin{array}{c} P_{i}^{(U)}(1) & \text{Vaccinatel prodromal inds. who developed Partial immunity} \\ \end{array} \\ \begin{array}{c} P_{i}^{(U)}(1) & \text{Vaccinatel prodromal inds. who developed Partial immunity} \\ \end{array} \\ \begin{array}{c} P_{i}^{(U)}(1) & \text{Vaccinatel prodromal inds. who developed Partial immunity} \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Vaccinatel prodromal inds. who developed ADE \\ \end{array} \\ \end{array} \\ \begin{array}{c} \hline P_{i}^{(U,-)}(1) & \text{Vaccinatel prodromal inds. who developed Partial immunity} \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Undiagnosed and asymptomatic fully inf. inds. that were waiting to get vaccinated \\ \end{array} \\ \begin{array}{c} \hline P_{i}^{(U,-)}(1) & \text{Undiagnosed or symptomatic fully inf. inds. that were waiting to get vaccinated \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Unvaccinable fully inf. inds. and vaccinated ones who failed to immunize \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Vaccinatel fully inf. inds. who developed Partial immunity \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Vaccinatel fully inf. inds. who developed Partial immunity \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Vaccinatel fully inf. inds. who developed Partial immunity \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Vaccinatel fully inf. inds. who developed Partial immunity \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Vaccinatel fully inf. inds. who were vaccinated during this phase with pending vaccine outcome \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Vaccinatel fully inf. inds. who were vaccinated during this phase and had a neutral outcome \\ \end{array} \\ \begin{array}{c} P_{i}^{(U,-)}(1) & \text{Unvaccinable late inf. inds. who developed Partial immunity \\ \end{array} \\ \begin{array}{c} P_{i}^{$	$S^{(ADE)}(t)$ $S^{(ADE)}(t)$	· ·		0 0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$E_k^{(V)}(t)$ $E^{(V)}(t)$			0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$E_k(t) = E^{(\text{NI})}(t)$			0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$E_k^{(\mathrm{PI})}(t)$	•		0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$E_k^{(ADE)}(t)$	· · ·		0
$\begin{array}{c c c c c c c } \hline P_k^{(n,CU)}(t) & \mbox{Vaccinated prodromal inds. who developed ADE} & \mbox{GER} & \mbox{US} \\ \hline I_k^{(U,-)}(t) & \mbox{Undiagnosed and asymptomatic fully inf. inds. waiting to be vaccinated} & \mbox{$k=1: 200$} \\ \hline k = 1: 200$\\ \hline k > 1: & 0 \\ \hline I_k^{(U,+)}(t) & \mbox{Diagnosed or symptomatic fully inf. inds. that were waiting to get vaccinated} \\ I_k^{(V)}(t) & \mbox{Fully inf. inds. with pending vaccine outcome} \\ I_k^{(NI)}(t) & \mbox{Unvaccinable fully inf. inds. and vaccinated ones who failed to immunize} \\ I_k^{(DP)}(t) & \mbox{Vaccinated fully inf. inds. who developed Partial immunity} \\ I_k^{(ADE)}(t) & \mbox{Vaccinated fully inf. inds. who developed ADE} \\ I_k^{(L,v)}(t) & \mbox{Fully inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ I_k^{(L,v)}(t) & \mbox{Fully inf. inds. who were vaccinated during this phase and had a del. outcome} \\ I_k^{(L,v)}(t) & \mbox{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ I_k^{(U,-)}(t) & \mbox{Unvaccinabel late inf. inds. that were waiting to get vaccinated} \\ I_k^{(V)}(t) & \mbox{Late inf. inds. who developed Partial immunity} \\ I_k^{(L,v)}(t) & \mbox{Unvaccinabel late inf. inds. waiting to be vaccinated} \\ I_k^{(V)}(t) & \mbox{Late inf. inds. who were vaccinated ones who failed to immunize} \\ I_k^{(N)}(t) & \mbox{Unvaccinabel late inf. inds. who developed ADE \\ I_k^{(N)}(t) & \mbox{Late inf. inds. who developed ADE \\ I_k^{(L,v)}(t) & \mbox{Late inf. inds. who developed ADE \\ I_k^{(L,v)}(t) & \mbox{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome \\ I_k^{(L,v)}(t) & \mbox{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome \\ I_k^{(L,v)}(t) & \mbox{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome \\ I_k^{(L,v)}(t) & \mbox{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome \\ I_k^{(L,v)}(t) & Late inf. inds. who were vaccinated while fully infecti$	$P_{i}^{(U)}(t)$	Vaccinated prodromal inds, waiting to be vaccinated		0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$P_{\mu}^{(V)}(t)$			0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$P_k^{(\mathrm{NI})}(t)$			0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$P_k^{(\mathrm{PI})}(t)$	-		0
$ \begin{array}{cccc} I_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic fully inf. inds. waiting to be vaccinated} & \begin{array}{c} k=1:\ 200\\ k>1: & 0 \\ \end{array} \\ \hline \\ I_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic fully inf. inds. that were waiting to get vaccinated} \\ I_k^{(\mathrm{V})}(t) & \text{Fully inf. inds. with pending vaccine outcome} \\ I_k^{(\mathrm{NI})}(t) & \text{Unvaccinable fully inf. inds. and vaccinated ones who failed to immunize} \\ I_k^{(\mathrm{ADE})}(t) & \text{Vaccinated fully inf. inds. who developed partial immunity} \\ I_k^{(\mathrm{ADE})}(t) & \text{Vaccinated fully inf. inds. who developed ADE} \\ I_k^{(I,*)}(t) & \text{Fully inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ I_k^{(I,*)}(t) & \text{Fully inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ I_k^{(I,*)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ I_k^{(V,+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ I_k^{(V,-)}(t) & \text{Unvaccinable late inf. inds. and vaccinate ones who failed to immunize} \\ I_k^{(V,+)}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ I_k^{(V,-)}(t) & \text{Unvaccinable late inf. inds. who developed ADE} \\ I_k^{(V,+)}(t) & \text{Uaccinated late inf. inds. and vaccinate ones who failed to immunize} \\ I_k^{(V,-)}(t) & \text{Unvaccinable late inf. inds. who developed partial immunity} \\ I_k^{(\mathrm{ADEE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ I_k^{(V,-)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ I_k^{(I,*)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ I_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a del. outcome} \\ I_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a del. outcome} \\ I_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ I_k^{(L,*)}(t) & Late inf. inds. who were vaccinated during this p$	$P_k^{(ADE)}(t)$	Vaccinated prodromal inds. who developed ADE		0
$\begin{array}{llllllllllllllllllllllllllllllllllll$			GER	USA
$\begin{array}{llllllllllllllllllllllllllllllllllll$	$I_{k}^{({\rm U},-)}(t)$	Undiagnosed and asymptomatic fully inf. inds. waiting to be vaccinated	k = 1:200	75
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{NI})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{PI})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. outc$				0
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{NI})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{PI})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. outc$	$I_k^{(\mathrm{U},+)}(t)$	Diagnosed or symptomatic fully inf. inds. that were waiting to get vaccinated		0
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{N})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{PI})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. outco$	$I_k^{(\mathrm{V})}(t)$	Fully inf. inds. with pending vaccine outcome		0
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{NI})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{PI})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. outc$	$I_{k_{\rm DD}}^{\rm (NI)}(t)$	Unvaccinable fully inf. inds. and vaccinated ones who failed to immunize		0
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{NI})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\sim)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. out$	$I_k^{(\rm PI)}(t)$	· ·		0
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{NI})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\sim)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. out$	$I_k^{(ADE)}(t)$			0
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{NI})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\sim)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. out$	$I_k^{(I,v)}(t)$			0
$ \begin{array}{ll} L_k^{(\mathrm{U},+)}(t) & \text{Diagnosed or symptomatic late inf. inds. that were waiting to get vaccinated} \\ L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{N})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{PI})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \text{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\vee)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase with pending vaccine outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,\times)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. outco$	$I_k^{(I,*)}$	· · · · · · · · · · · · · · · · · · ·		0
$ \begin{array}{ll} L_k^{(\mathrm{U},-)}(t) & \text{Undiagnosed and asymptomatic late inf. inds. waiting to be vaccinated} \\ L_k^{(\mathrm{V})}(t) & \text{Late inf. inds. with pending vaccine outcome} \\ L_k^{(\mathrm{NI})}(t) & \text{Unvaccinable late inf. inds. and vaccinated ones who failed to immunize} \\ L_k^{(\mathrm{PI})}(t) & \text{Vaccinated late inf. inds. who developed partial immunity} \\ L_k^{(\mathrm{ADE})}(t) & \mathrm{Vaccinated late inf. inds. who developed ADE} \\ L_k^{(I,\mathrm{V})}(t) & \text{Late inf. inds. who were vaccinated while fully infectious with pending vaccine outcome} \\ L_k^{(I,\mathrm{V})}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a neutral outcome} \\ L_k^{(I,*)}(t) & \text{Late inf. inds. who were vaccinated while fully infectious and had a del. outcome} \\ L_k^{(L,\mathrm{V})}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a neutral outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & \text{Late inf. inds. who were vaccinated during this phase and had a del. outcome} \\ L_k^{(L,*)}(t) & Late inf. inds. who were vaccinated during this phase and had a del. ou$		Fully inf. inds. who were vaccinated during this phase and had a del. outcome		0
	$L_{k}^{(U,+)}(t)$			0
	$L_{k}^{(0,-)}(t)$			0
	$L_k^{(\mathbf{v})}(t)$			0
	$L_k^{(\mathrm{PI})}(t)$			0
	$L_k^{(11)}(t)$	•		0
	$L_k^{(I,V)}(t)$			0
	$L_k^{(I,\sim)}(t)$			0
	$L_k(l)$ $L^{(I,*)}(t)$	•		0
	$L_k^{(L,V)}(t)$	*		0
	$L_{L}^{(L,\sim)}(t)$			0
	$L_{k}^{(L,*)}(t)$			0
<i>B(t)</i> Becovered or fully immunized individuals	R(t)	Recovered or fully immunized individuals		0
D(t) Dead individuals		•		0

Summary of all model compartments and their initial values chosen for simulation. Abbreviations: del....deleterious; inf. ...infectious; inds. ...individuals.