







## Chain model of infectious diseases: Reservoir

- Human
  - Symptomatic illness
  - Carriers
    - Asymptomatic (no illness during infection)
    - Incubatory (pre-illness)
    - Convalescent (post-illness recovery)
    - Chronic (persistent infection)
- Animal (zoonoses)
- Environmental

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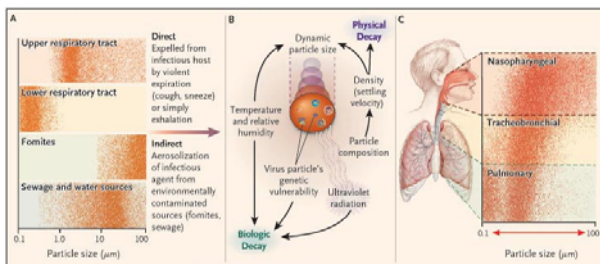
Notes:

## Modes of transmission for an exogenous agent

- Contact
  - Direct contact (touch, kissing, sex)
  - Indirect contact (intermediate objects, fomites)
  - Vertical transmission (before, during, and after birth)
- Respiratory droplets/secretions (cough, sneeze)
- Airborne (droplet nuclei, dust)
- Vehicle-borne (ingestion, instrumentation, injection, infusion)
- Vector-borne (mechanical, biologic)

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## Aerobiologic transmission of a respiratory microbial agent

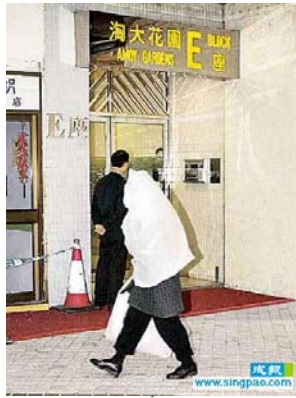


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PMID: 15102996



## Public devised infection control during SARS outbreak, 2003



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Notes:

## Inappropriate infection control during SARS outbreak, 2003

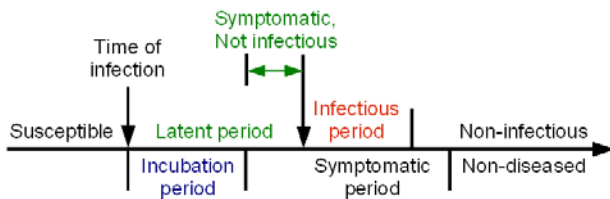


Reuters: An Indian woman diagnosed with SARS sits on her bed at the Doctor Naidu Infectious Diseases Hospital in the western city of Pune. Doctors reported India's first case of the disease in a marine engineer from the western coastal state of Goa on Friday, April 18, 2003

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## Natural history of infection: Latent period > Incubation period

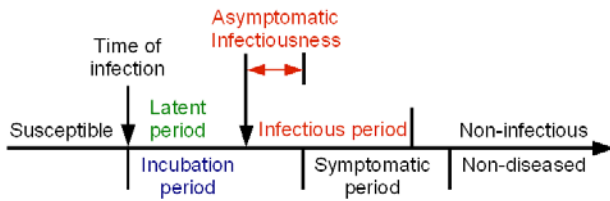


When the latent period is *longer* than the incubation period, an infected person becomes infectious after symptom onset.

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## Natural history of infection: Latent period < Incubation period

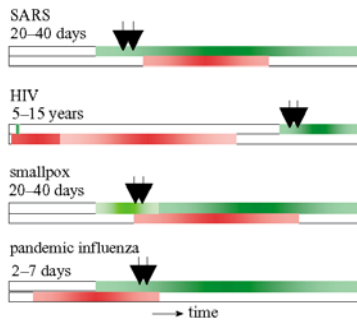


When the latent period is *shorter* than the incubation period, an infected person becomes infectious before symptom onset.

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Notes:

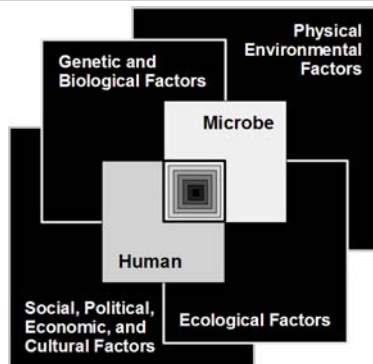
## Distribution of infectiousness of selected infectious diseases



■ symptoms—duration    ■ infectiousness    ▼ isolation

20 PMID: 15306395

## Convergence model for human- microbe interaction



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