

National Response to SARS: Singapore

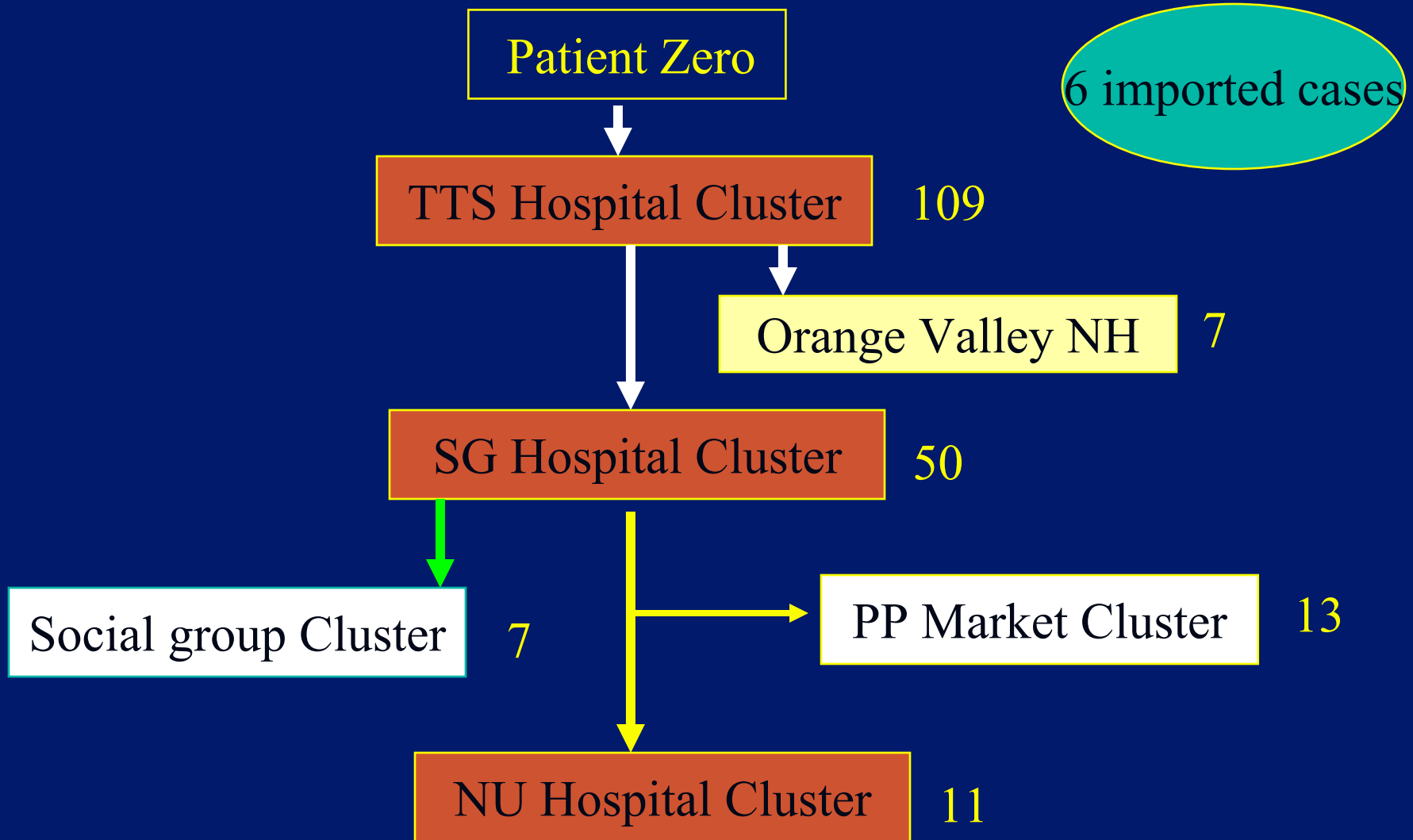
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National Response to SARS: Singapore

- SARS transmission pattern
- 3 key lessons learnt & our response
- What we think has worked
 - Containment of community transmission:
Surveillance, contact tracing, quarantine

SARS Transmission pattern - Singapore



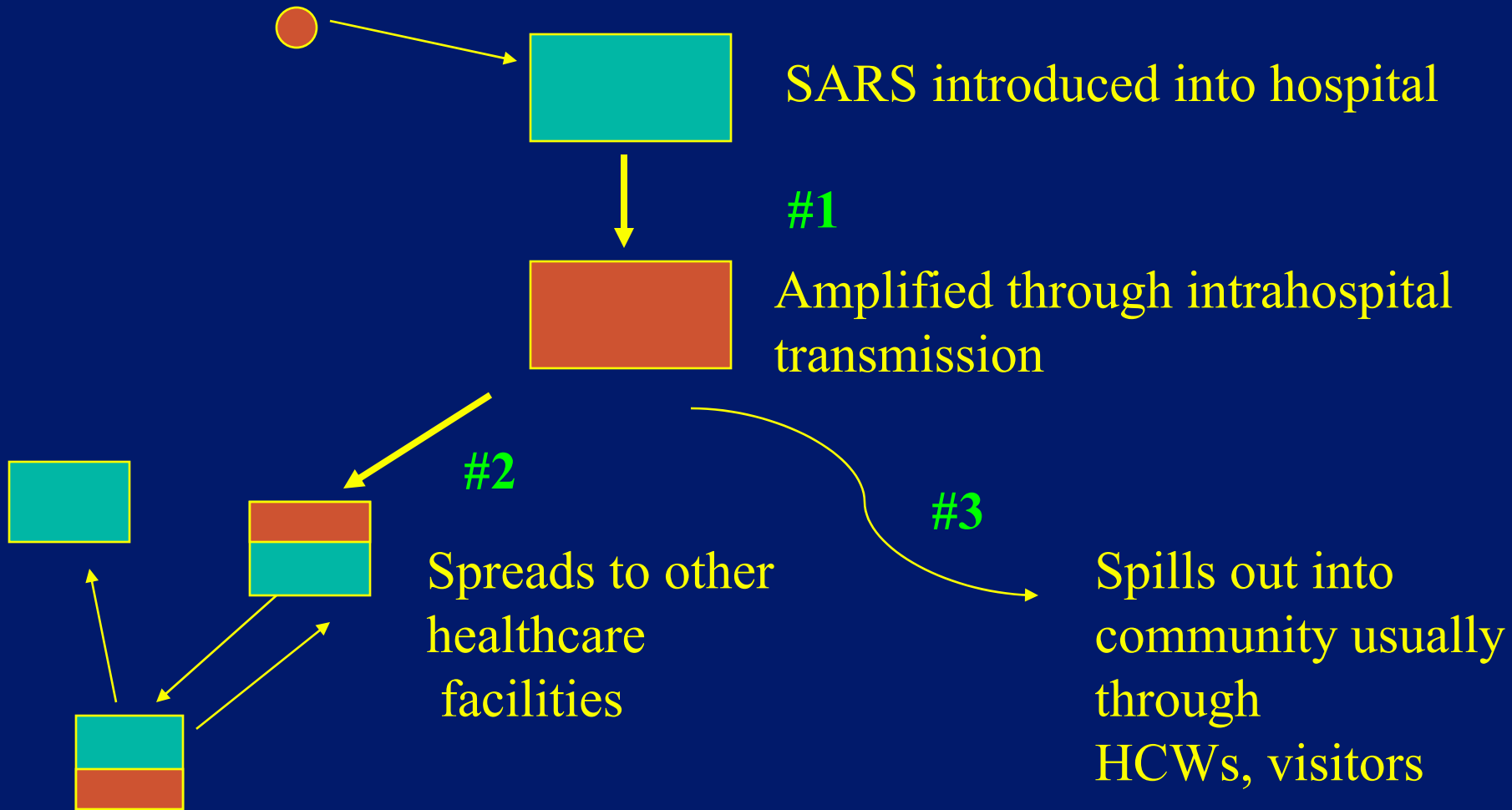
Key elements of national response

- Strong, coordinated national effort involving government, multiple agencies & public
- Prevention of import & export of cases
- Detect, isolate & contain strategy
- International info exchange & coordination

3 KEY LESSONS LEARNT

- Intrahospital transmission is the most important amplifier of SARS infection

Amplification of SARS infection through hospital transmission



3 KEY LESSONS LEARNT

- Intrahospital transmission is the most important amplifier of SARS infection
- “Superspreaders” are unforgiving

Superspreaders are unforgiving

In Singapore

5 patients accounted for
103 of the 205
probable SARS cases

3 KEY LESSONS LEARNT

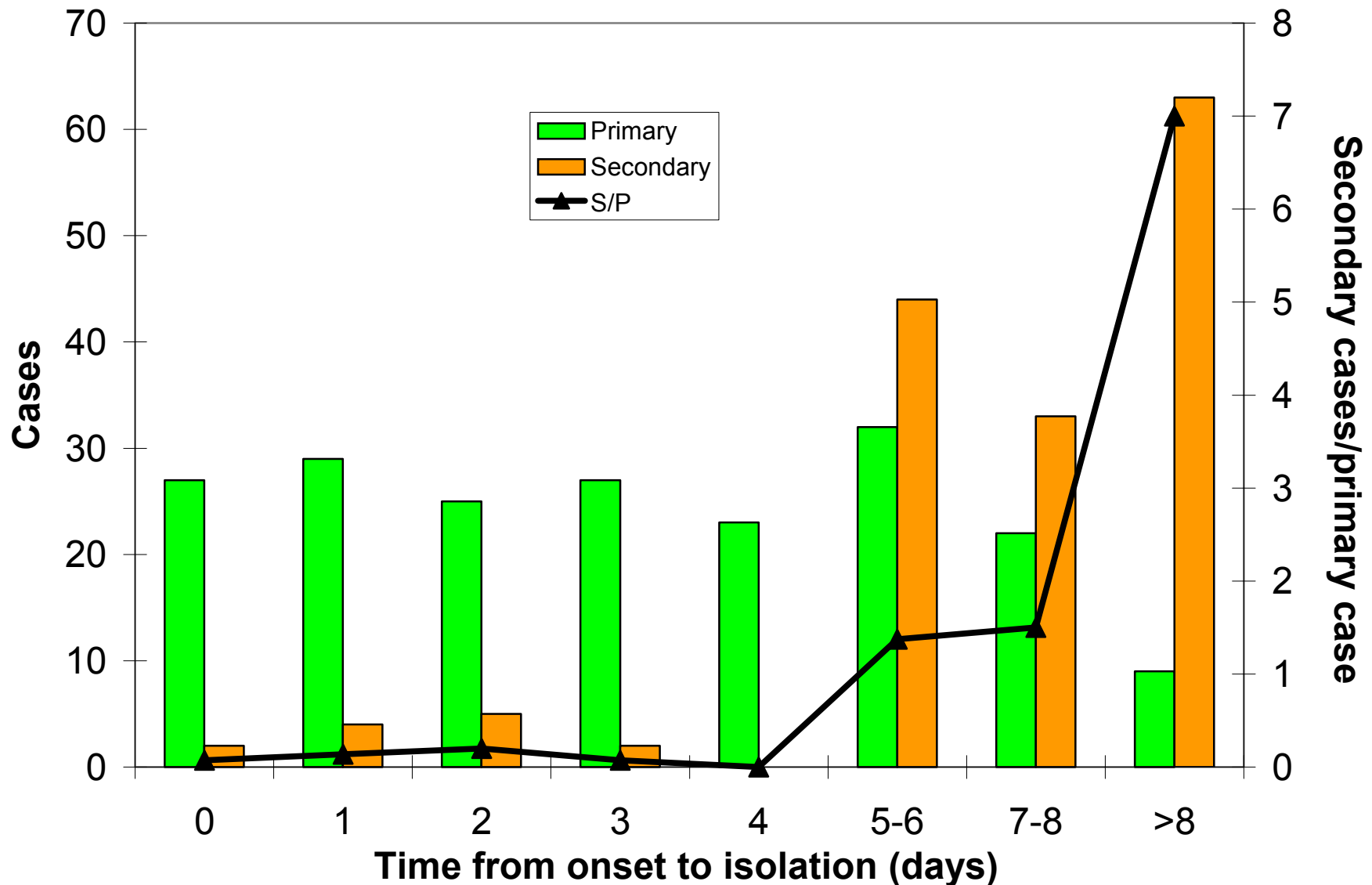
- Intrahospital transmission is the most important amplifier of SARS infection
- “Superspreaders” are unforgiving
- Atypical SARS patients pose the greatest risk

Our first “atypical” SARS case - 10 March 03

- Diabetes, hypertension, bad heart disease
- Admitted 10 March 03 with fever & pneumonia
- Blood cultures grew gram negative bacteria
- Deteriorated 12 March
- Diagnosis- worsening community acquired pneumonia & heart failure
- Treated in CCU

- Infected 23 (18 HCWs, 5 family members & visitors)
- Unrecognised exposure to another SARS patient

Atypical SARS cases are very difficult to detect early



Public health implications

<p>Intrahospital transmission is a major disease amplifier</p>	<p>Early detection and rapid containment</p>
<p>Superspreaders Atypical SARS cases</p>	<p>Very “Wide-net” surveillance & quarantine policy</p>

What has worked for us

Containment of hospital infection clusters

- Designating 1 hospital as the SARS hospital
- Stringent temperature surveillance of all staff & patients
 - isolation of staff, monitoring for fever clusters
- Enforced use of personal protective gear, fit-tested N95 masks, in all healthcare facilities

What we think has worked

Control of community transmission

- Broad-based & sensitive surveillance system
- Rapid, effective contact-tracing
- Low threshold for enforced quarantine during outbreak

Surveillance system: Sources

- Mandatory notification of suspected cases by email/fax within 24 hours by all doctors
- All suspicious cases sent to TTSH (SARS hospital)
GPs, TCM, other hospitals, nursing homes, walk-in
- System for daily monitoring for fever clusters in all hospitals, nursing homes
- Temperature screening at points of entry and in community eg markets, schools

All suspicious cases



11am review & classification of all cases by senior drs

TTS Hospital



Epi team in TTSH to interview all patients (prob/suspect/obs)



DAILY EPI MEETING AT MOH

All suspicious cases



Epi team in TTSH to interview all patients (prob/suspect/obs)

Fever clusters in hospitals, nursing homes

Notifications by drs



DAILY EPI MEETING AT MOH



MOH Contact Tracing Centre

FRT
↔

Contact tracing team in hospitals/schools/army camps/etc



HQO
Phone surveillance

Trace in 24 hours
HQO same day

Triggers for quarantine

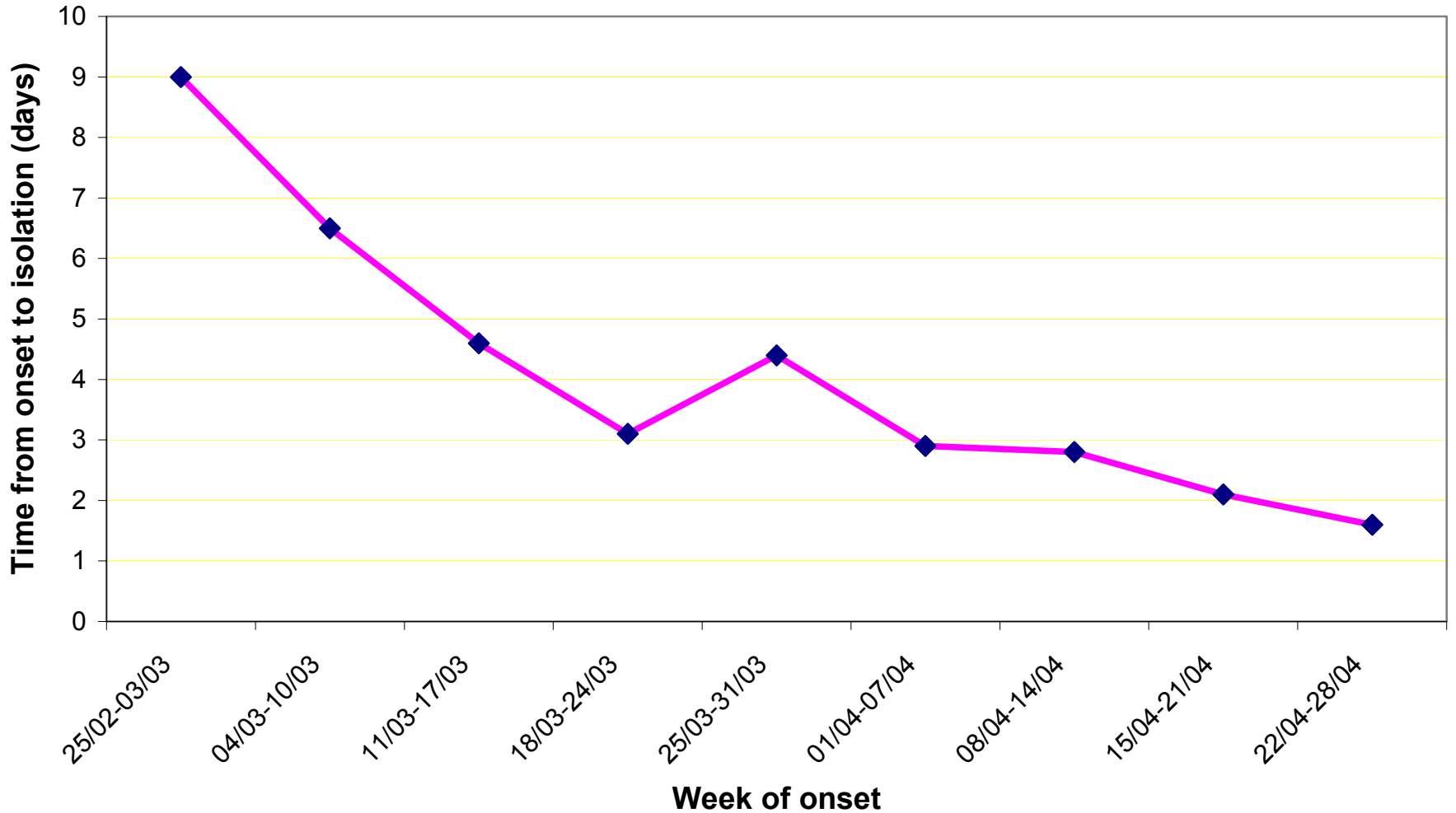
Mandatory Home quarantine x 10 days

- Contacts of all probable and suspect cases
- Contacts of atypical or suspicious pneumonia patients without travel or contact history (or phone surveillance)

Hospital quarantine or other measures

- Clusters of febrile healthcare workers or patients in a work area

Weekly average time from onset of symptoms to isolation of SARS cases



Early isolation of Probable SARS cases

Period	No. of cases	Previously suspects (%)	Onset to isolation (days)
3/3 - 9/3	15	0%	6.8 (5-9)
10/3- 16/3	39	41%	4.5 (0-11)
17/3-23/3	33	48.5%	3.5 (0-8)
31/3-6/4	44	63.6%	2.9 (0-10)
21/4-27/4	8	87.5%	1.3 (0-4)

Conclusion

In an outbreak situation

- Rapid containment of hospital clusters critical
- Intensive “wide-net” surveillance with low threshold for mandatory quarantine & phone surveillance
- Surveillance needs to be intensified when chain of transmission appears to have been broken