

# **SPI-M-O: Possible scenarios for the coming months**

**28 October 2020**

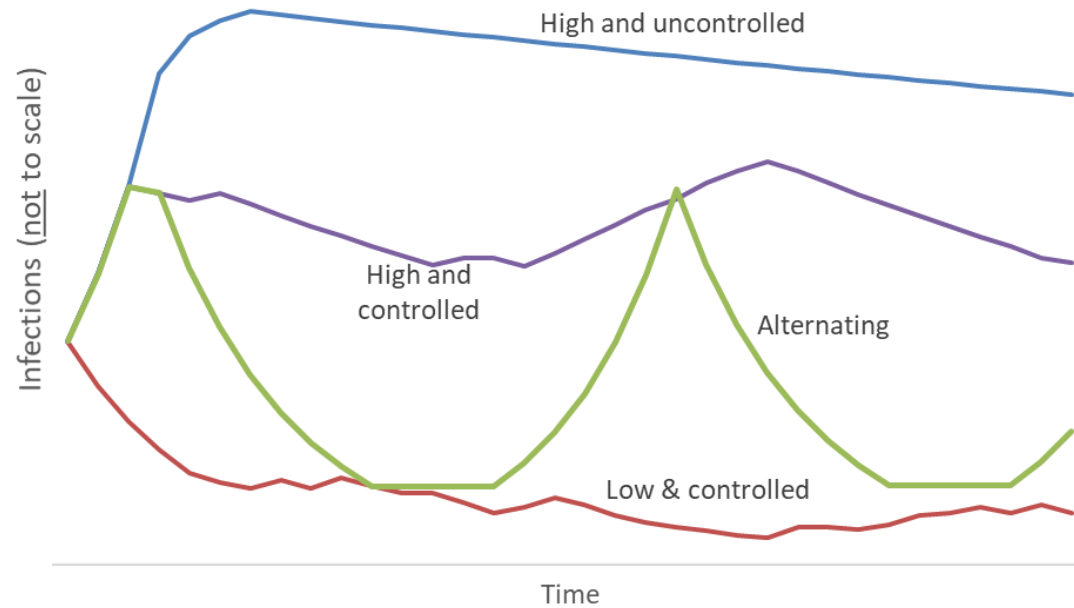
**NOT GOVERNMENT POLICY**

# Possible scenarios for the coming months

This note is an assessment of the scenarios that could play out over the next few months. As a framework for decision making, it is deliberately high level and illustrative; **the reality will be more complex. Different nations of the UK or regions of England could follow different paths** and hybrids of these scenarios are plausible. **Analysis of the implications of the different scenarios is initial and non-exhaustive.**

**None of these scenarios are palatable.** Nevertheless, until such a time that more effective treatments are available or a significant proportion of the population have been immunised, no other scenarios are possible. In particular, any economic evaluations of interventions should not be compared to a “COVID-free” world, as each of the scenarios have substantial economic implications. We do not advocate for any of these scenarios, but note some of the benefits and detriments of each in the following slides. Economic aspects of this note are high-level only and do not necessarily reflect the view of HM Treasury.

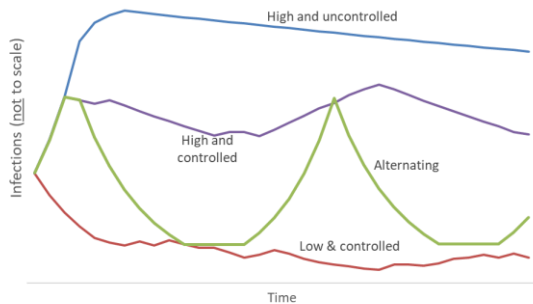
Illustrative longer term scenarios



This is an **illustration** of these scenarios.

It is not to scale and **does not show any impact of the festive period.**

Illustrative longer term scenarios



# Summary of scenarios

## 1: Low & controlled

## 2. High & controlled

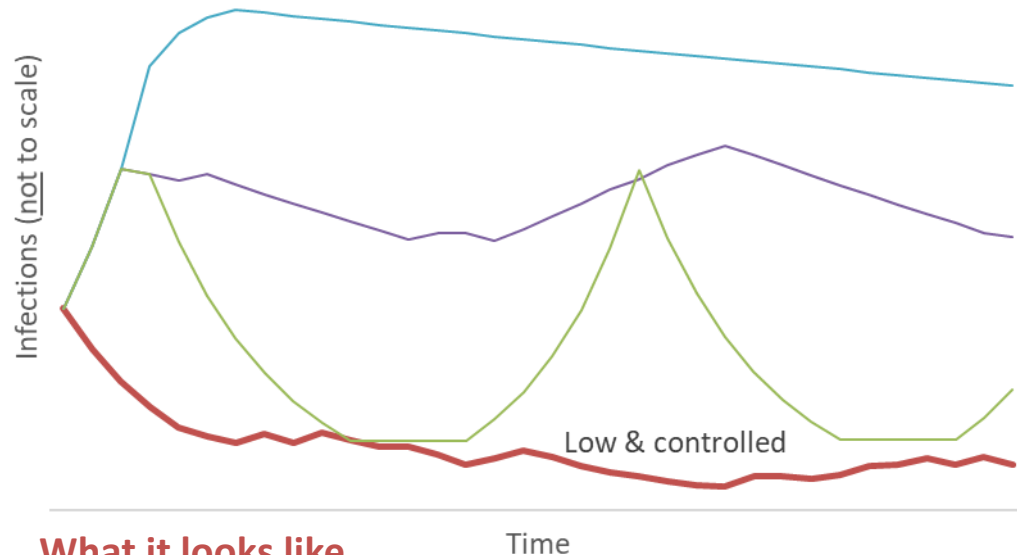
## 3. High & uncontrolled

## 4. Alternating

	1: Low & controlled	2. High & controlled	3. High & uncontrolled	4. Alternating
<b>Direct COVID harm</b>	Low	High	Very high	Intermediate
<b>Indirect COVID harm</b>	Very Low	Potentially high	Very high	Unclear
<b>Non-COVID health harm caused by interventions</b>	High in initial lockdown, then lower in control phase	Higher than control phase of scenario 1	Lower than scenario 2.	Unclear; could be somewhat mitigated if circuit breakers announced in advance
<b>Economic damage</b>	Severe in initial phase, then lower but significant in control phase	No lockdown damage, but greater than in control phase of scenario 1	Substantial	Unclear; could be somewhat mitigated if circuit breakers announced in advance
<b>Implications for festive period</b>	Scope for limited loosening	Little to no scope for limited loosening	No scope for increased mixing without even greater NHS pressure	Scope for loosening dependant on prevalence at the time
<b>Implications if a vaccine becomes available</b>	More lives saved; scope for earlier loosening of restrictions	Fewer lives saved than "scenario 1". Little scope for early loosening of restrictions	Fewer lives saved than scenario 1	Dependant on the prevalence at the time of programme start
<b>Equality considerations</b>	Relatively equitable	Major disparities	Major disparities	Greater inequalities than scenario 1, lower than 2 or 3

# 1: Low and controlled prevalence

Illustrative longer term scenarios



## What it looks like

Prevalence is low and controlled.

Neither elimination nor a perfectly flat epidemic is possible, but sufficiently robust action from the government and the population successfully controls surges in cases where they occur.

Low prevalence means that test and trace can play a big role in containing outbreaks.

## Consequences

**Direct COVID harm:** Low

**Additional indirect COVID deaths** (e.g. due to critical care becoming overwhelmed): Very low to none

**Indirect non-COVID harms** (e.g. due to NHS reprioritisation): Low

**Non-COVID health harms** (e.g. due to NPI impacts): Potentially high during the initial phase where  $R$  is below 1. Lower in the control phase. The sooner such a strategy were enacted, the shorter the lockdown needed and therefore the lower the indirect health harms.

**Economic damage:** Severe economic harm would result from the initial measures and from a sustained period of time spent under restrictions to ensure low prevalence. The economic harm could be somewhat mitigated by the long term, consistent measures resulting from this strategy.

**Implications for the festive period:** Greater potential for loosening of social distancing rules for a limited period of time.

**Implications if a vaccine becomes available:** Vaccination prevents a high number of deaths. If prevalence is low when a vaccination programme starts, social distancing measures can start to be lifted earlier as increasing incidence would take longer to lead to widespread mortality or pressure on the NHS.

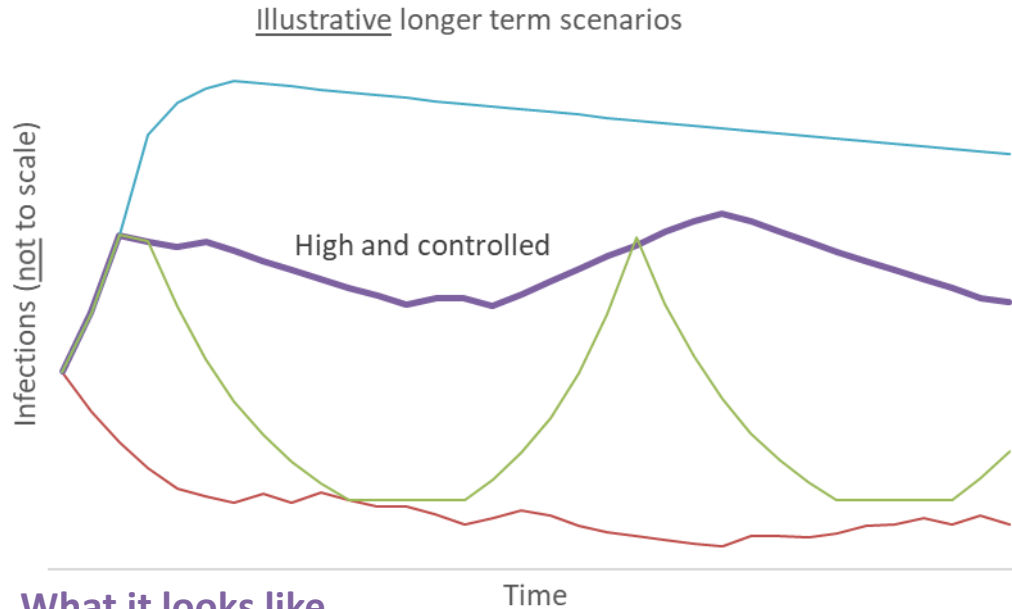
**Equality considerations:** Relatively equitable.

# 1: Low and controlled prevalence contd.

## What would need to happen for this scenario to occur?

- Rapid and decisive interventions to push  $R$  well below 1 and maintain that for some time. The only interventions that have successfully done this are those introduced in March 2020 i.e. “National lockdown”. Measures to hold  $R$  below 1 would need to be in place for longer in those areas that currently have higher prevalence, or if decision making is delayed.
- We do not know if modifying such a lockdown to allow schools to open would be sufficient to get  $R$  below 1. If they do, a lockdown with schools open would need to be maintained for longer than one with schools closed.
- Once prevalence is low, measures could be eased somewhat. Substantial measures would need to be in place over winter in order to keep  $R$  around 1. Recent weeks have shown that Tier 1 is not enough to do so.
- Depending on background levels of adherence to universal interventions, such as household isolation and quarantine, Tier 2 alongside an improved test, trace, and isolate system may be sufficient to control the epidemic when prevalence is low. This would need to be combined with rapid and firm local interventions if and when spikes in local areas occur and may require short but stringent national or regional action, if local interventions are not enough.

## 2: Sustained high prevalence controlled by policy



### What it looks like

Prevalence is high for several months.

It will not be entirely flat, but would drop slowly if population immunity levels increases and / or social distancing measures are strengthened (or adherence to them improves).

If measures are weakened or adherence wanes, infections would resurge.

Prevalence is too high for effective test and trace.

### Consequences

**Direct COVID harm:** High, particularly in those unable to work from home. Much longer spent at high prevalence than in Spring 2020.

**Additional indirect COVID deaths** (e.g. due to critical care becoming overwhelmed): Potential to be high.

**Indirect non-COVID harms** (e.g. due to NHS reprioritisation): High. Much longer spent at high prevalence than in Spring 2020.

**Non-COVID health harms** (e.g. due to NPI impacts): Lower than scenario 1 during that scenario's lockdown. Subsequent social distancing measures would need to be stricter than in scenario 1, so indirect health harms in that period would be greater. Indeterminate additional health harms due to long periods of uncertain health care provision and perceived high levels of direct COVID-risk.

**Economic damage:** Lower than scenario 1 initially. The subsequent social distancing measures would need to be stricter than in scenario 1, so indirect economic harms in that period would be greater. Less certainty for business than in scenario 1.

**Implications for the festive period:** Little to no scope for loosening of social distancing rules over Christmas.

**Implications if a vaccine becomes available:** Depending on timing of vaccine availability, fewer deferred deaths averted than in scenario 1. If prevalence is high once a vaccination programme starts, social distancing measures would need to be kept in place for longer, as exponential growth would rapidly overwhelm the NHS even once a small proportion of people immunised.

**Equality:** Major disparities, particularly for people unable to work at home.

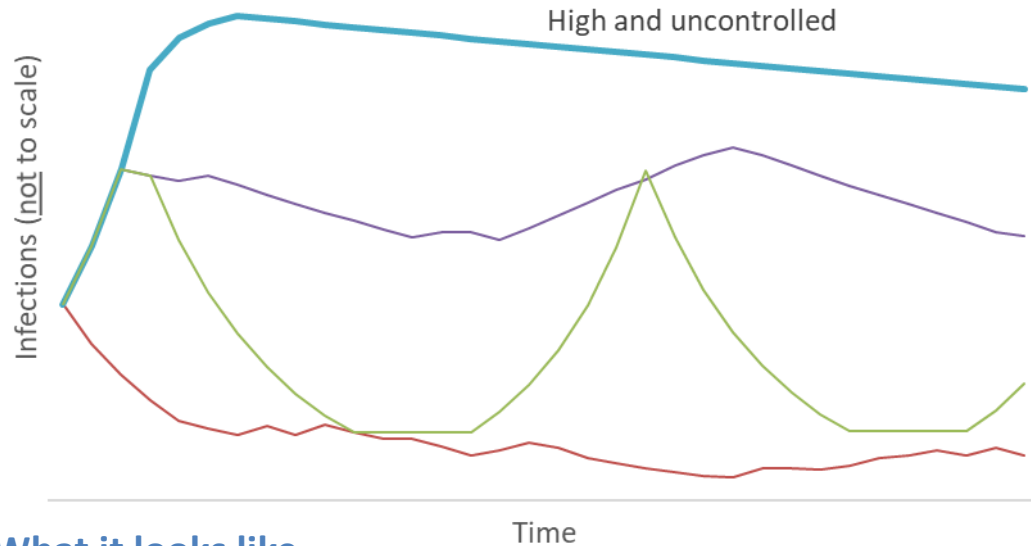
## 2: Sustained high prevalence controlled by policy contd.

### What would need to happen for this scenario to occur?

- We continue our current trajectory
- Prevalence is high in some parts of the country, and lower in others, but growth is rapid elsewhere.
- More of the country enters Tier 3 restrictions; these may need to become progressively more stringent over time to control the epidemics but baseline Tier 3 are unlikely to significantly curtail them. We note that a build up of immunity levels as a result of high prevalence, combined with stringent interventions could lead to a gradual drop in prevalence.
- Restrictions need to be more severe than in scenario 1 because test and trace will bring little or no benefit.

# 3: Sustained high prevalence, not controlled by government interventions

Illustrative longer term scenarios



## What it looks like

Similar to scenario 2, except government interventions are not sufficient to stop epidemic growth.

Infections increase even further until a combination of changes in behaviour (with people unwilling to mix with others or participate economically even if rules permit it) and population immunity levels result in a plateauing of the epidemic at very high prevalence, gradually dropping over time.

There are too many cases for effective test and trace.

## Consequences

**Direct COVID harm:** Very high and likely worse than scenario 2.

**Additional indirect COVID deaths** (e.g. due to critical care becoming overwhelmed): Very high.

**Indirect non-COVID harms** (e.g. due to NHS reprioritisation): Very high and likely worse than scenario 2.

**Non-COVID health harms** (e.g. due to NPI impacts): Lower than scenario 2. If behaviour changes because people are scared that implies there would be significant indirect health harms.

**Economic damage:** Substantial economic damage resulting from unwillingness of people to participate economically even if permitted by the rules. Low certainty for business but able to trade.

**Implications for the festive period:** Some people would not feel safe to meet others over Christmas. Increased mixing from those who do feel safe would result in greater pressure on the NHS.

**Implications if a vaccine becomes available:** Fewer deaths averted than in scenarios 1 and 2. If behaviours change once a vaccine starts to be rolled out, there would be even greater pressure on the as the virus will spread more quickly than population level immunity can build up.

**Equality :** Major disparities, particularly for people unable to work at home.



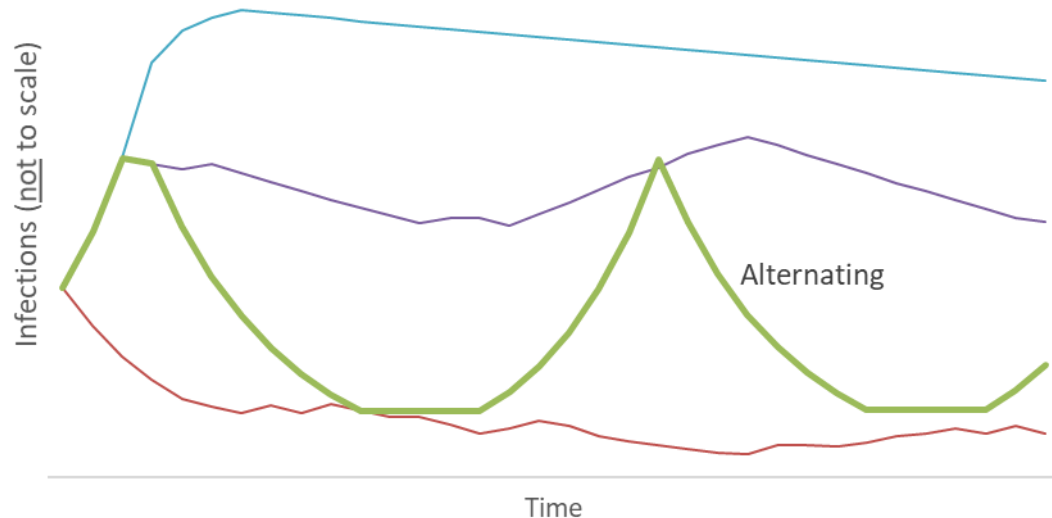
# 3: Sustained high prevalence, not controlled by government interventions

## What would need to happen for this scenario to occur?

- We continue our current trajectory
- Prevalence is high in some parts of the country, and lower in others, but growth is rapid elsewhere.
- Policy decisions sufficient to curtail the epidemic are not taken, so prevalence rises higher than in scenario 2.
- As hospitals become overwhelmed, large numbers of people choose to not mix with others, resulting in a *de facto* lockdown and possibly self-organised local intervention efforts.

# 4: Alternating between higher and lower prevalence

Illustrative longer term scenarios



## What it looks like

Multiple epidemic waves, with periods of exponential growth alternating by stringent interventions to reduce prevalence.

The epidemic waves could be the result of circuit breakers planned in advance, or lockdowns introduced once hospitals become overrun.

## Consequences

**Direct COVID harm:** Medium. Worse than scenario 1 but better than scenarios 2 or 3.

**Additional indirect COVID deaths** (e.g. due to critical care becoming overwhelmed): Dependent on how high prevalence is permitted to rise during growth phases.

**Indirect non-COVID harms** (e.g. due to NHS reprioritisation): Dependent on how high prevalence is permitted to rise during growth phases.

**Non-COVID health harms** (e.g. due to NPI impacts): Considerable length of time spent in lockdown. Unclear how it would compare to other scenarios but could be somewhat mitigated, if announced in advance.

**Economic damage:** Unclear how this would compare to the other scenarios, but long periods of time followed by measures strict enough to keep  $R$  below 1. Very uncertain environment for businesses, but could be somewhat mitigated if circuit breakers or similar measures were pre-planned rather than ad hoc.

**Implications for the festive period:** Greater mixing would be possible if prevalence is low in mid-December.

**Implications if a vaccine becomes available:** Dependent on the prevalence at the time vaccination programme starts.

**Equality :** Greater inequalities than in scenario 1, but lower than in 2 and 3.

## 4: Alternating between higher and lower prevalence contd.

### What would need to happen for this scenario to occur?

- As per scenario 2 and 3, we continue our current trajectory
- Prevalence is high in some parts of the country, and lower in others, but growth is rapid elsewhere.
- Decisive interventions to push  $R$  below 1, as in scenario 1. This could be a circuit breaker or a longer intervention.
- Restrictions are then relaxed, leading to a return to exponential growth.
- This scenario could either occur as a set of planned circuit breakers or in an *ad hoc* manner each time prevalence gets unacceptably high or above a certain level.

# Implausible scenarios

The following scenarios are not plausible without a widely rolled out vaccine or effective pharmaceutical:

- Virus is eliminated from the UK or globally eradicated.
- The population is successfully segmented into higher and lower risk groups who are allowed to behave differently, building up herd immunity in younger age groups without causing high numbers of deaths and hospital admissions in older people.
- A managed epidemic, with little or no government interventions or behaviour change but little damage to the economy or health.