The Math Behind Social Distancing

Social distancing measures can play a critical role in controlling the spread of pandemics, but only if carried out properly.

**What Is It?**
- Keep 6 ft. (2 m) away from others
- Avoid nonessential gatherings and crowds
- Wear cloth masks when at a higher risk

**What Can You Do?**
- More than one case possible
- Seek medical attention if symptoms present
- Avoid going out, especially the elderly

Scientists measure the intensity of an infectious disease by its reproduction number (R₀).

R₀ = the average number of people a sick person will infect.

For COVID-19, this has been estimated at 3.5

To illustrate the potential of social distancing, the following assumptions are made:
- There is a direct linear correlation between social exposure and R₀
- The median incubation period of COVID-19 is approximately 5 days. After this period, a person is considered symptomatic and can spread the virus.

With these in mind, here’s how distancing measures can control the spread of the disease:

**Reducing Social Exposure by 75%**

**Day 1**
- 1 Person infects 1 Person

**Day 20**
- 0.005 People Infected
- 3.5 People Infected

**Reducing Social Exposure by 50%**

**Day 1**
- 1 Person infects 1 Person

**Day 30**
- 0.22 People Infected
- 15 People Infected

**No Social Distancing Measures in Place**

**Day 1**
- 1 Person infects 1 Person

**Day 30**
- 2.5 People Infected
- 406 People Infected in 30 Days

Remember, these figures are based on assumptions. What we are trying to illustrate is the potential of social distancing to control the spread of infectious diseases.

Source: Nipah Virus, University of Alabama, Birmingham

As scientists and healthcare professionals rush to develop a vaccine for COVID-19, social distancing can be thought of as the first line of defense. However, for these measures to be as effective as possible, it’s important to remember that we all have a part to play.