

# Beregninger på B.1.1.7 - den engelske variant

## Opdatering med andel af smittede med B.1.1.7 pr. 12. januar 2021

De nye tal stammer fra pressemødet d. 13/1-2021 kl. 19:

<https://www.dr.dk/nyheder/indland/heunicke-den-britiske-variant-breder-sig-i-danmark>

## Forudsætninger

- andelen af smittede med B.1.1.7 (den engelske variant af coronavirus) er **3.6 %** af alle smittede pr. 12. januar 2021
- den engelske variant B.1.1.7 er 50% mere smitsom end de gamle varianter af coronavirus
- generationstiden for covid-19 er 4.7 dage
- udgangspunktet d. 12. januar 2021 er **1400** smittede

## Beregninger (fremskrivninger)

*restart*

*with(plots) :*

**Modeludtryk for smittetal, hvor  $R$  er kontakttallet.**

NB: Der er tale om eksponentielle udviklinger.

**Lad  $t$  være antal dage siden nytår 2020/2021.**

*antal* := 1400 :

*andel* := 3.6 :

*dato* := 12 :

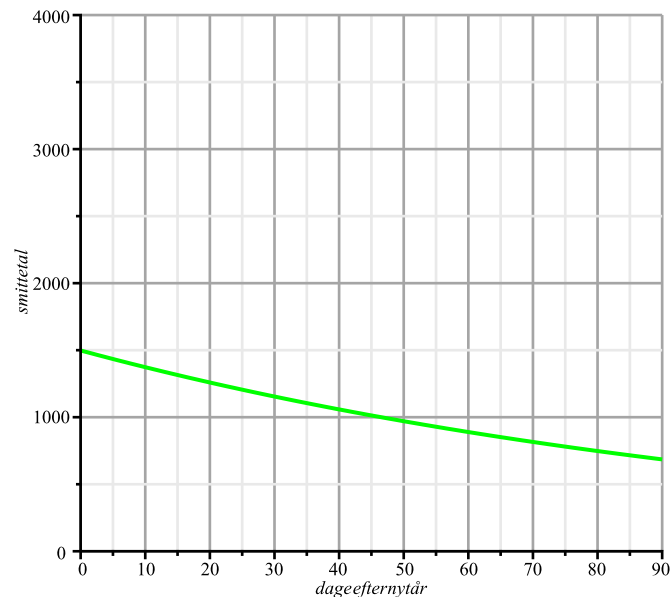
$$R_{\text{Gamle}}(t) := \text{antal} \cdot \left(1 - \frac{\text{andel}}{100}\right) \cdot R^{\frac{t - \text{dato}}{4.7}} :$$

$$R_{\text{B117}}(t) := \text{antal} \cdot \frac{\text{andel}}{100} \cdot \left(R \cdot \left(1 + \frac{50}{100}\right)\right)^{\frac{t - \text{dato}}{4.7}} :$$

## ▼ Antag kontakttal for de gamle coronavirus varianter er 0.96

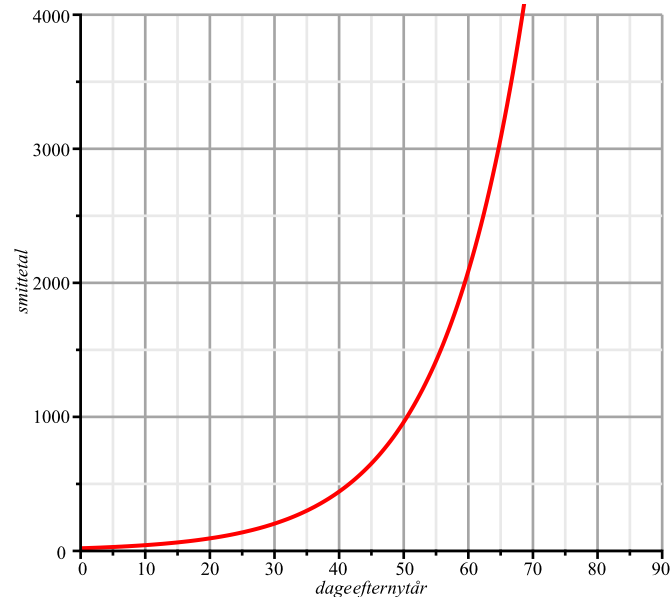
$R := 0.96 :$

$\text{Gamle} := \text{plot}(R_{\text{Gamle}}(t), t=0..90, \text{color} = \text{green}, \text{gridlines}, \text{view} = [0..90, 0..4000], \text{labels} = [\text{dage efter nytår}, \text{smittetal}], \text{labeldirections} = [\text{horizontal}, \text{vertical}], \text{legend} = \text{"Gamle varianter"})$



— Gamle varianter

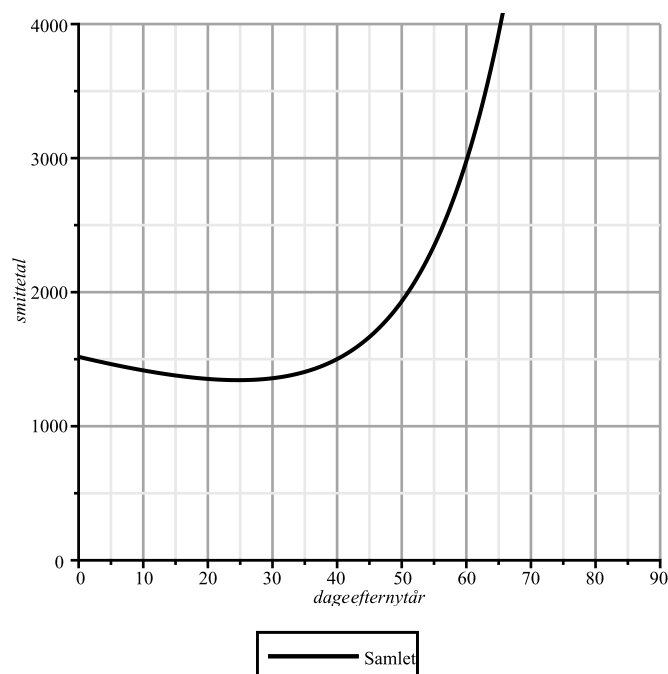
$B_{117} := \text{plot}(R_{B_{117}}(t), t=0..90, \text{color} = \text{red}, \text{gridlines}, \text{view} = [0..90, 0..4000], \text{labels} = [\text{dage efter nytår}, \text{smittetal}], \text{labeldirections} = [\text{horizontal}, \text{vertical}], \text{legend} = \text{"B.1.17"})$



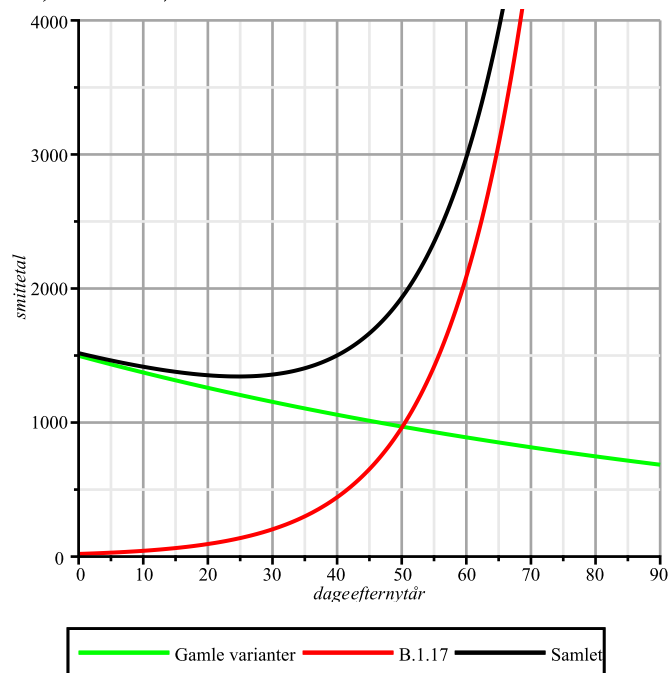
— B.1.17

Samlede antal smittede:

$\text{Samlet1} := \text{plot}(R_{\text{Gamle}}(t) + R_{B_{117}}(t), t=0..90, \text{color} = \text{black}, \text{gridlines}, \text{view} = [0..90, 0..4000], \text{labels} = [\text{dage efter nytår}, \text{smittetal}], \text{labeldirections} = [\text{horizontal}, \text{vertical}], \text{legend} = \text{"Samlet"})$



```
Ialt1 := display(Gamle, B117, Samlet1)
```



## Antag kontakttal for de gamle coronavirus varianter er 0.85

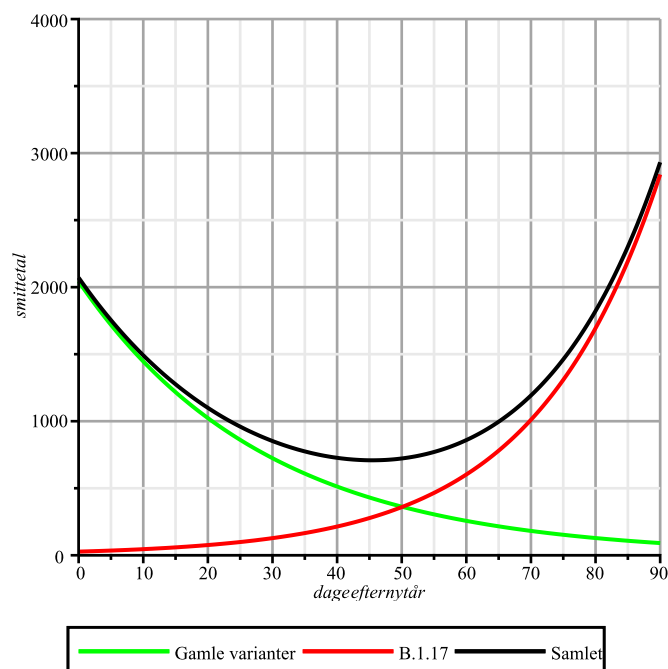
$R := 0.85$  :

```
Gamle := plot( $R_{Gamle}(t)$ ,  $t = 0 \dots 90$ , color = green, gridlines, view = [0 ..90, 0 ..4000], labels = [dage efter nytår, smittetal], labeldirections = [horizontal, vertical], legend = "Gamle varianter") :
```

```
B117 := plot( $R_{B117}(t)$ ,  $t = 0 \dots 90$ , color = red, gridlines, view = [0 ..90, 0 ..4000], labels = [dage efter nytår, smittetal], labeldirections = [horizontal, vertical], legend = "B.1.17") :
```

```
Samlet2 := plot( $R_{Gamle}(t) + R_{B117}(t)$ ,  $t = 0 \dots 90$ , color = black, gridlines, view = [0 ..90, 0 ..4000], labels = [dage efter nytår, smittetal], labeldirections = [horizontal, vertical], legend = "Samlet") :
```

```
Ialt2 := display(Gamle, B117, Samlet2)
```



## Antag kontakttal for de gamle coronavirus varianter er 0.8

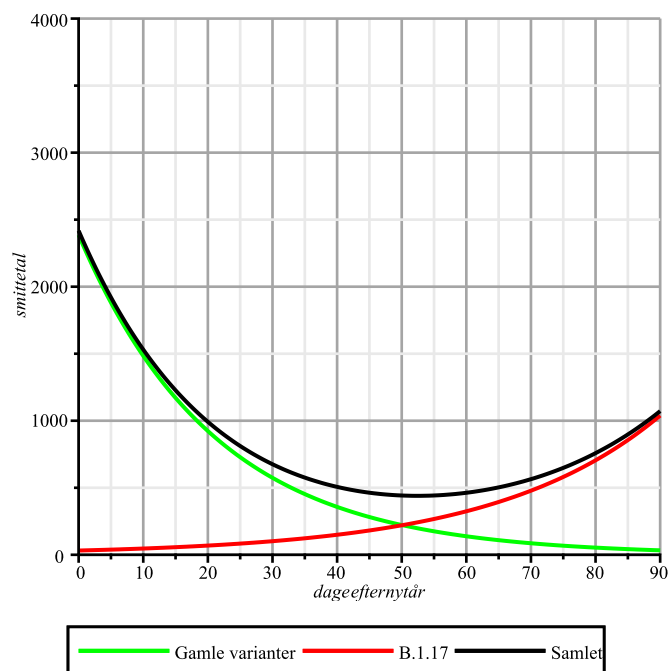
$R := 0.8 :$

$Gamle := plot(R_{Gamle}(t), t=0..90, color=green, gridlines, view=[0..90, 0..4000], labels=[dage\ efter\ nyt\ \r, smittetal], labeldirections=[horizontal, vertical], legend="Gamle\ varianter") :$

$B117 := plot(R_{B117}(t), t=0..90, color=red, gridlines, view=[0..90, 0..4000], labels=[dage\ efter\ nyt\ \r, smittetal], labeldirections=[horizontal, vertical], legend="B.1.17") :$

$Samlet3 := plot(R_{Gamle}(t) + R_{B117}(t), t=0..90, color=black, gridlines, view=[0..90, 0..4000], labels=[dage\ efter\ nyt\ \r, smittetal], labeldirections=[horizontal, vertical], legend="Samlet") :$

$Ialt3 := display(Gamle, B117, Samlet3)$



## Antag kontakttal for de gamle coronavirus varianter er 0.7

$R := 0.7 :$

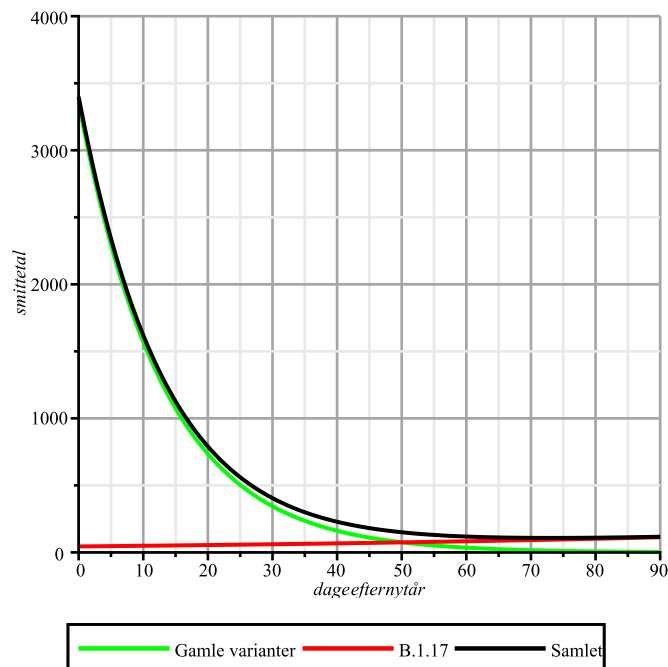
$Gamle := plot(R_{Gamle}(t), t=0..90, color=green, gridlines, view=[0..90, 0..4000], labels=[dage\ efter\ nyt\ \r, smittetal], labeldirections=[horizontal, vertical], legend="Gamle\ varianter") :$

$smittetal$ ],  $labeldirections = [horizontal, vertical]$ ,  $legend = "Gamle varianter") :$

$B117 := plot(R_{B117}(t), t = 0 .. 90, color = red, gridlines, view = [0 .. 90, 0 .. 4000], labels = [dage\ efter\ nytår,$   
 $smittetal$ ],  $labeldirections = [horizontal, vertical]$ ,  $legend = "B.1.17") :$

$Samlet4 := plot(R_{Gamle}(t) + R_{B117}(t), t = 0 .. 90, color = black, gridlines, view = [0 .. 90, 0 .. 4000], labels = [dage\ efter\ nytår,$   
 $smittetal$ ],  $labeldirections = [horizontal, vertical]$ ,  $legend = "Samlet") :$

$Ialt4 := display(Gamle, B117, Samlet4)$

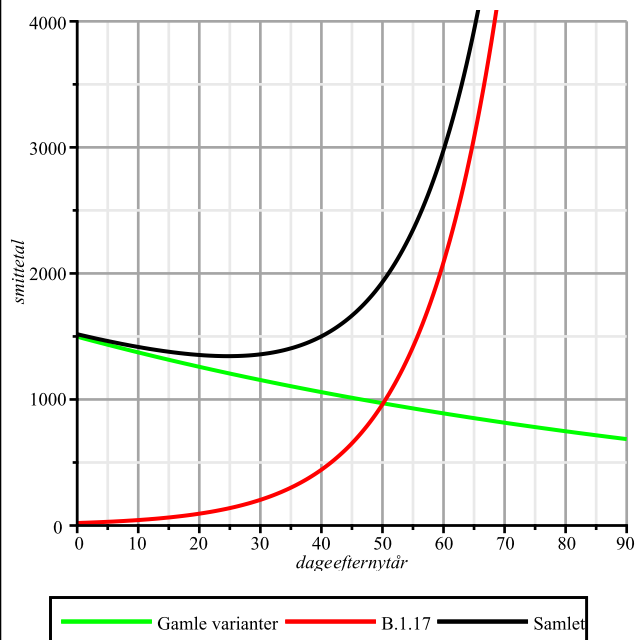


Her uddør coronavirus!

## Samling af de 4 resultater

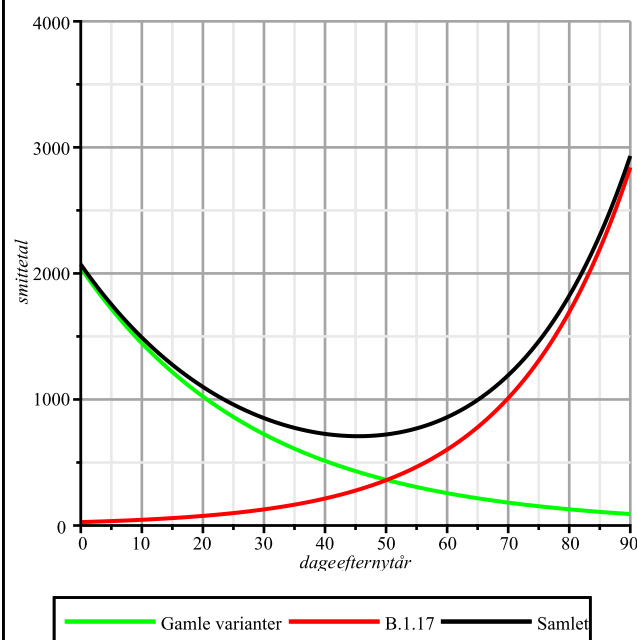
Hvis  $R = 0.96$

$Ialt1$



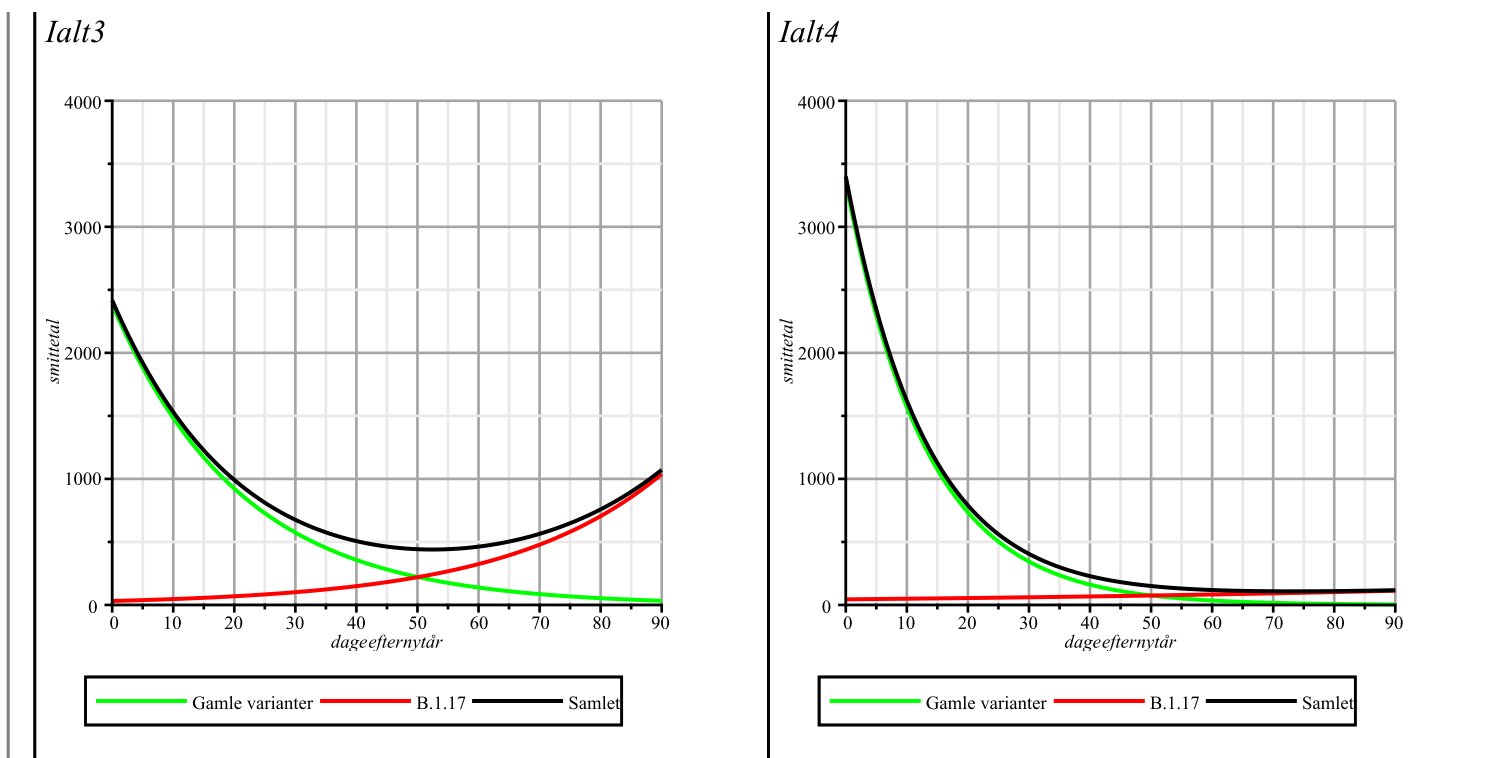
Hvis  $R = 0.85$

$Ialt2$



Hvis  $R = 0.8$

Hvis  $R = 0.7$



## Plot af de samlede smittetal som funktion af kontakttallet $R$

Hvor  $R = 0.96, 0.85, 0.8, 0.7$

`unassign('R')`

`Smittetal1 := plot(subs(R = 0.96,  $R_{Gamle}(t) + R_{B117}(t)$ ), t = 0 .. 90, color = blue, legend = "R=0.96", transparency = 0) :`

`Smittetal2 := plot(subs(R = 0.85,  $R_{Gamle}(t) + R_{B117}(t)$ ), t = 0 .. 90, color = blue, legend = "R=0.85", transparency = 0.3) :`

`Smittetal3 := plot(subs(R = 0.8,  $R_{Gamle}(t) + R_{B117}(t)$ ), t = 0 .. 90, color = blue, legend = "R=0.8", transparency = 0.5) :`

`Smittetal4 := plot(subs(R = 0.7,  $R_{Gamle}(t) + R_{B117}(t)$ ), t = 0 .. 90, color = blue, legend = "R=0.7", transparency = 0.6) :`

`display(Smittetal1, Smittetal2, Smittetal3, Smittetal4, gridlines, view = [0 .. 90, 0 .. 4000], labels = [dage efter nytår, smittetal], labeldirections = [horizontal, vertical])`

