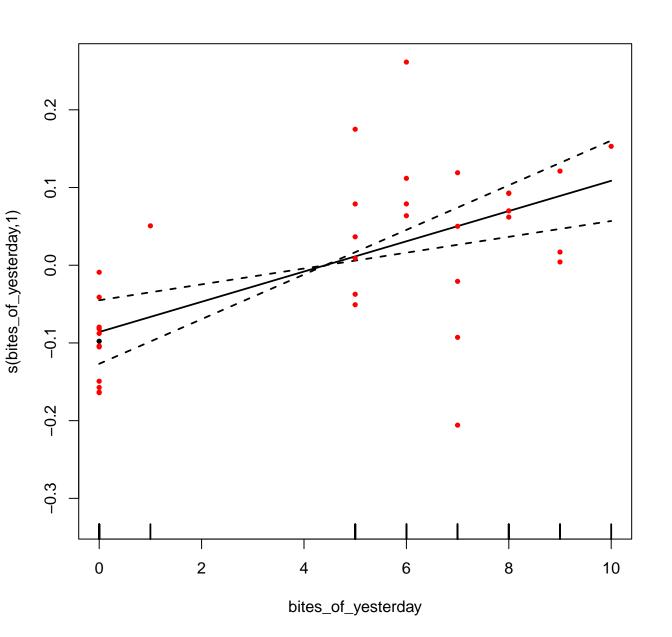
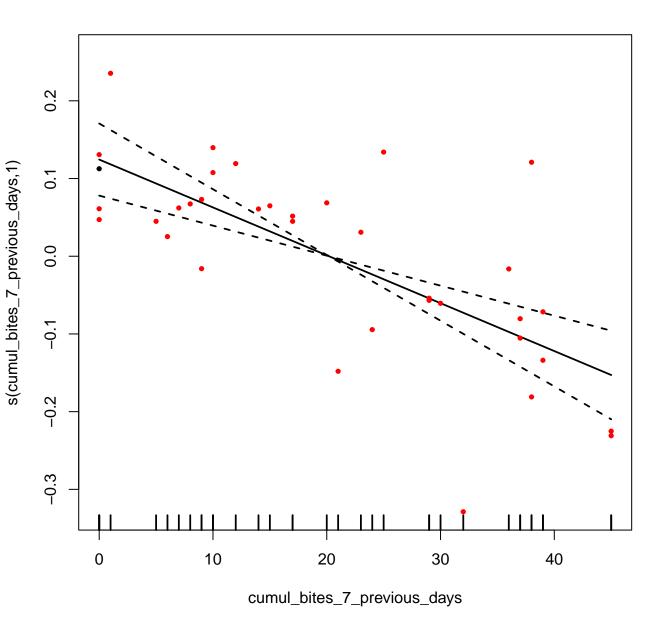




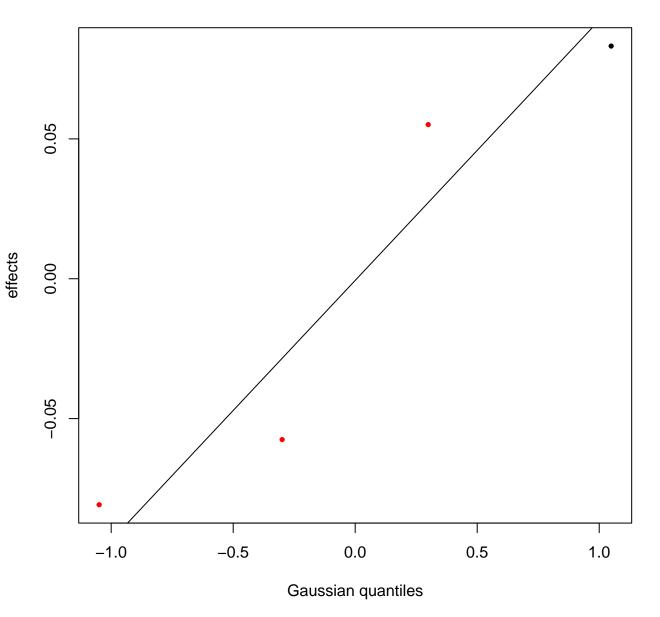
Nb excluded (LOD): 0

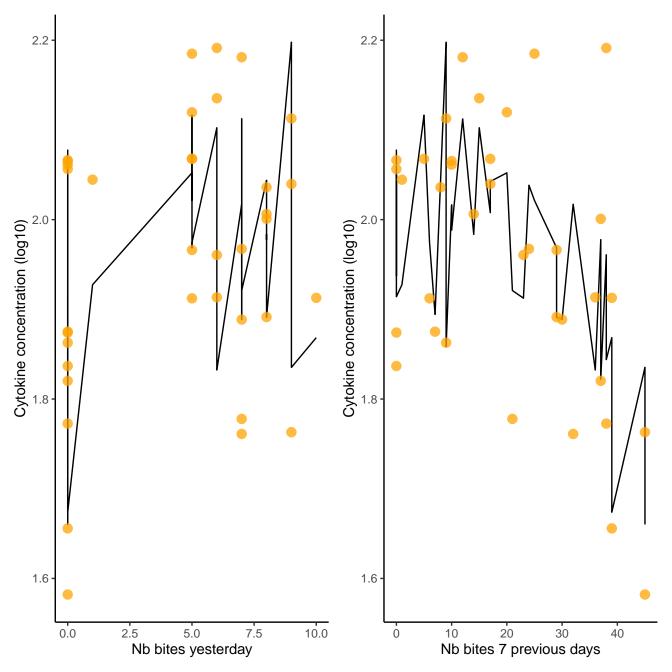
Nb remaining: 36

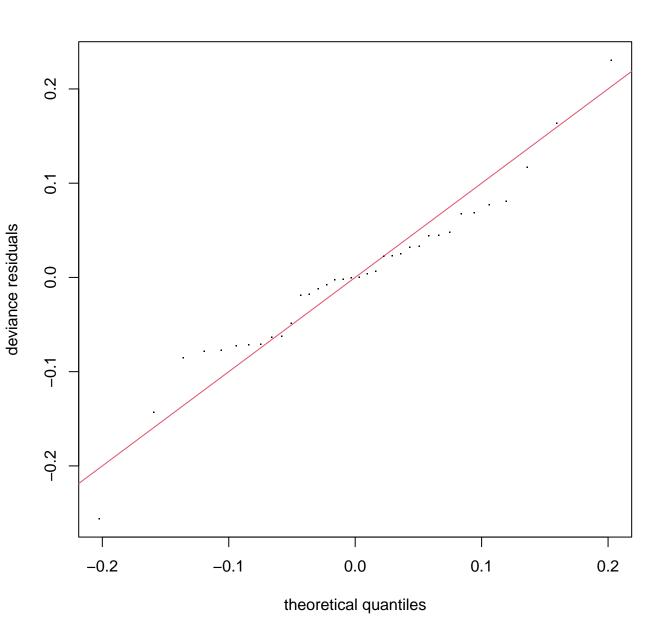




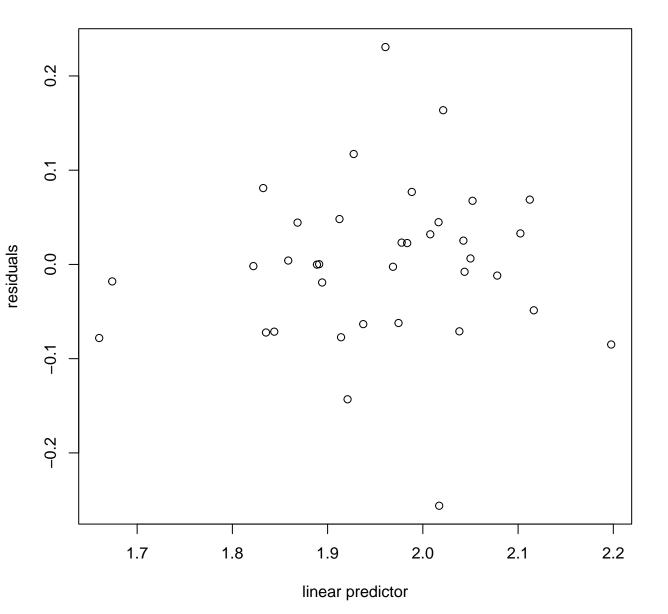




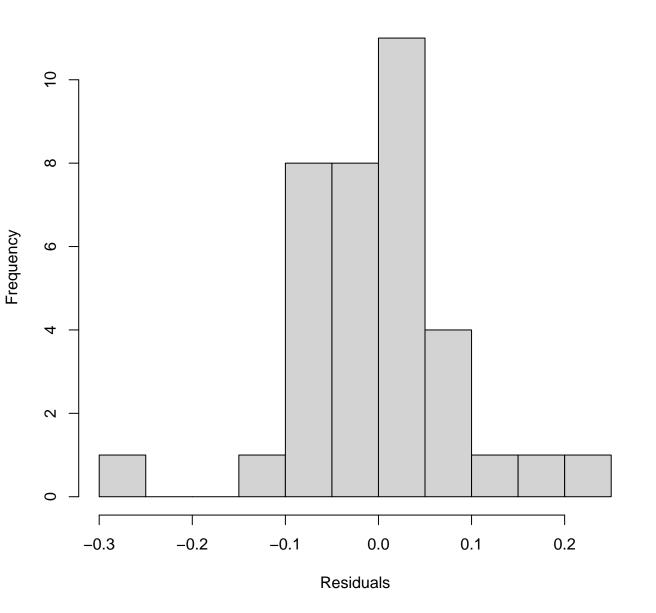




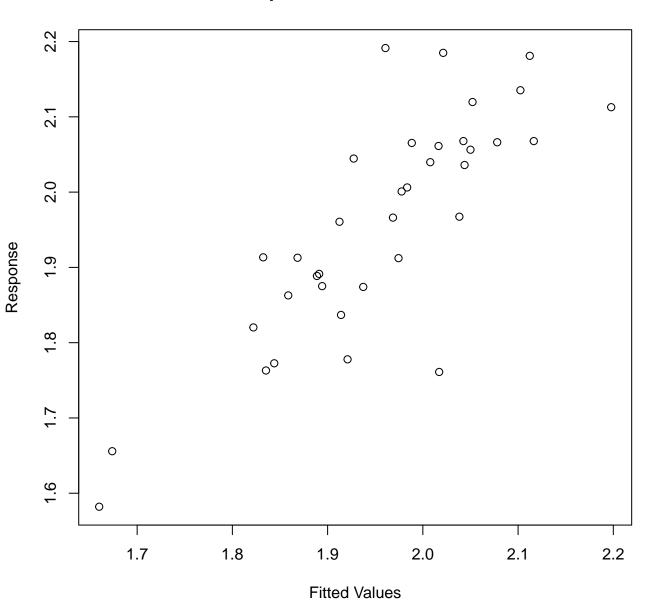
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 12 iterations.
Gradient range [-1.512783e-05,4.621316e-06]

(score -31.99646 & scale 0.008467418).
Hessian positive definite, eigenvalue range [4.134531e-06,18.18007].

Hessian positive definite, eigenvalue range Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

indicate that k is too low, especially if edf is close to k'.  $\label{eq:k'} k' \text{ edf } k\text{-index p-value}$ 

 s(bites\_of\_yesterday)
 3.0 1.0
 0.99
 0.44

 s(cumul\_bites\_7\_previous\_days)
 3.0 1.0
 1.26
 0.94

 s(ID)
 4.0 2.6
 NA
 NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]

```
Approximate significance of smooth terms:

edf Ref.df F p-value
s(bites_of_yesterday) 1 17.650 0.000219 ***
s(cumul_bites_7_previous_days) 1.000 1 28.761 8.6e-06 ***
s(ID) 2.596 3 8.062 0.000166 ***
```

```
R-sq.(adj) = 0.619 Deviance explained = 66.9%
-ML = -31.996 Scale est. = 0.0084674 n = 36
```

AICc [1] -57.969



Nb remaining: 3

Nb excluded (LOD): 17

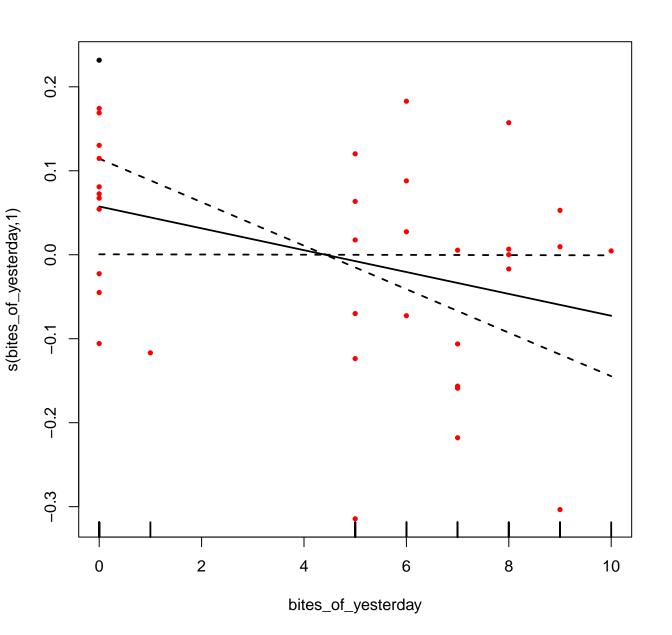
EGF ERROR : Un terme a moins de combinaisons de covariables uniques que le degré de liberté maximum spécifié

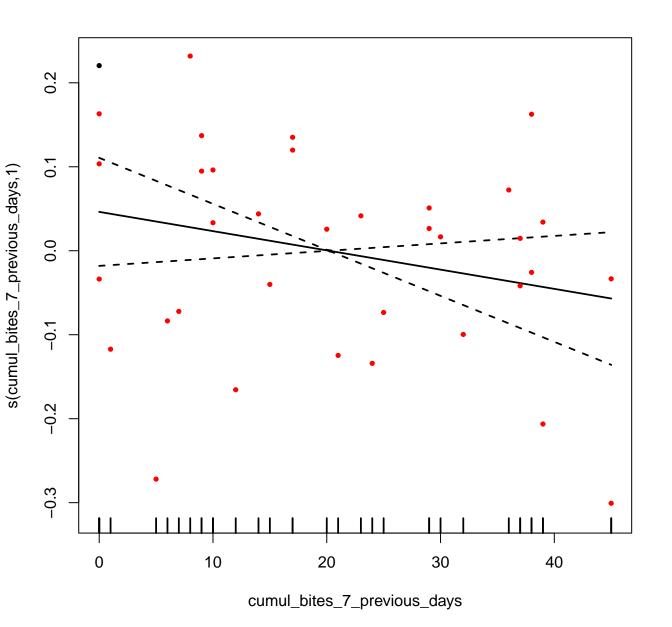


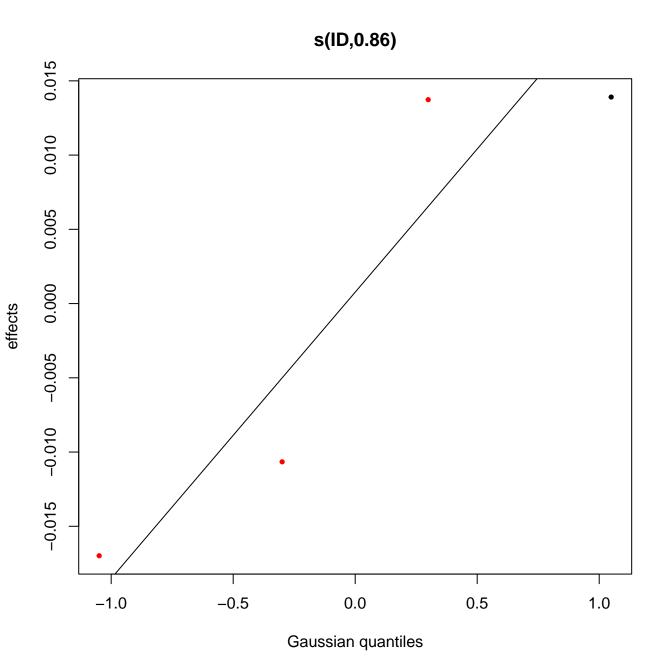


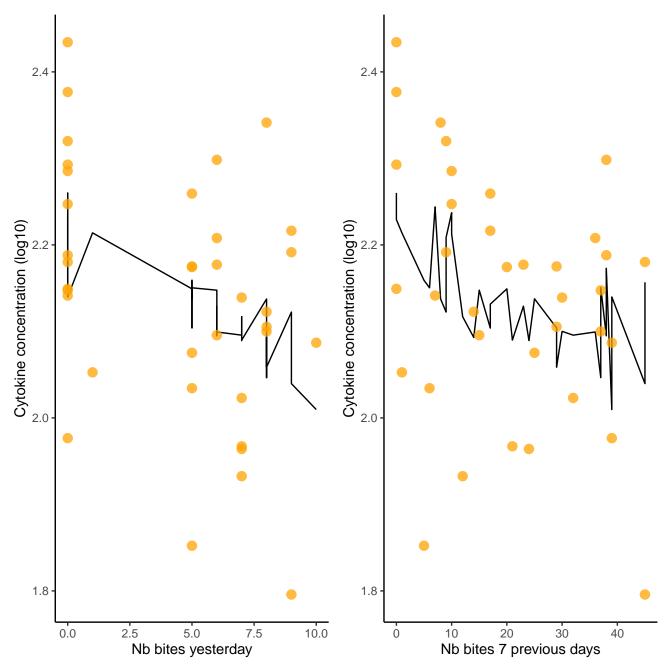
Nb excluded (LOD): 0

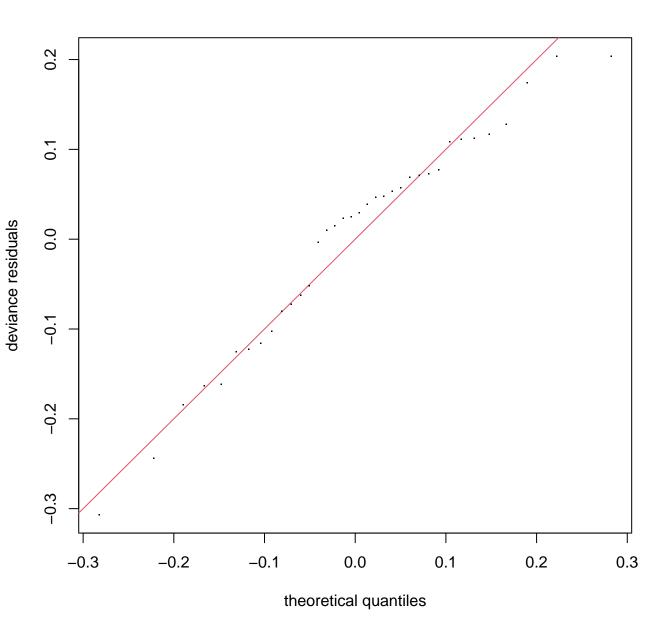
Nb remaining: 36



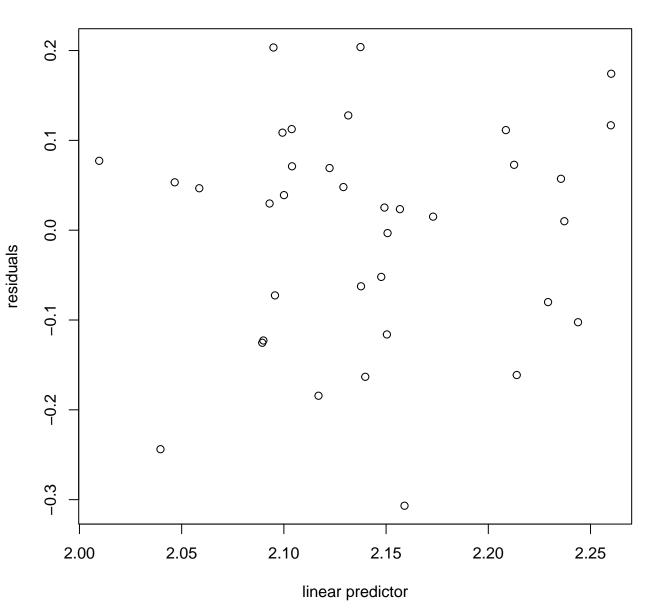




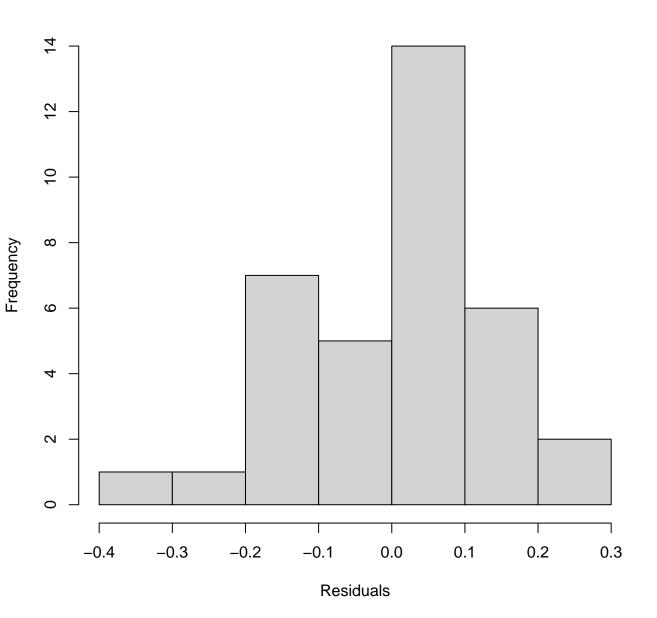




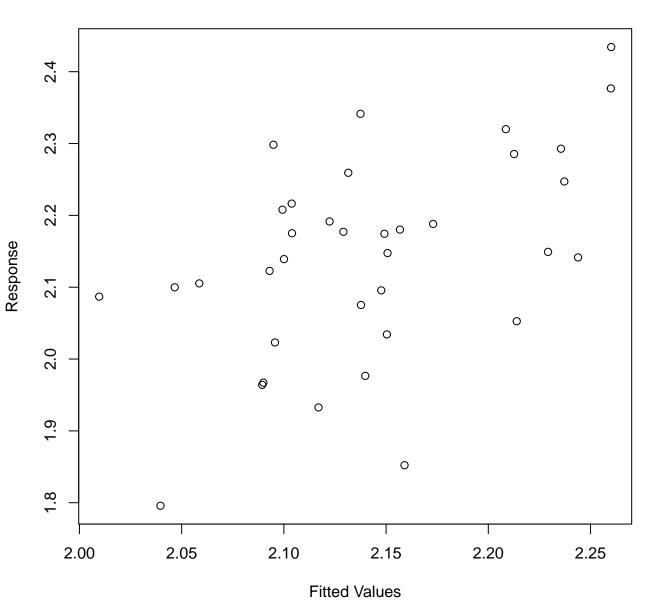
Resids vs. linear pred.



## Histogram of residuals



### Response vs. Fitted Values



```
Hessian positive definite, eigenvalue range [1.135394e-06,18.01854].
Model rank = 11 / 11
Basis dimension (k) checking results. Low p-value (k-index<1) may
```

indicate that k is too low, especially if edf is close to k'.

```
edf k-index p-value
s(bites_of_yesterday)
                                                       0.64
                               3.000 1.000
                                               1.08
s(cumul_bites_7_previous_days) 3.000 1.000
                                               0.73
                                                       0.02 *
```

Method: ML Optimizer: outer newton full convergence after 10 iterations. Gradient range [-5.488936e-06,6.609834e-07] (score -23.6211 & scale 0.01645672).

s(ID) 4.000 0.857 NA NA

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

Estimate Std. Error t value Pr(>|t|) (Intercept) 2.14243 0.02533 84.57 <2e-16 \*\*\*

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1 Approximate significance of smooth terms:

edf Ref.df F p-value s(bites\_of\_yesterday) 1.0000 1 4.075 0.052 . s(cumul\_bites\_7\_previous\_days) 1.0000 1 2.073 0.160 s(ID)

0.8571 3 0.494 0.181

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ....... 1

R-sq.(adj) = 0.186 Deviance explained = 25.3% -ML = -23.621 Scale est. = 0.016457 n = 36

AICc [1] -36.43411



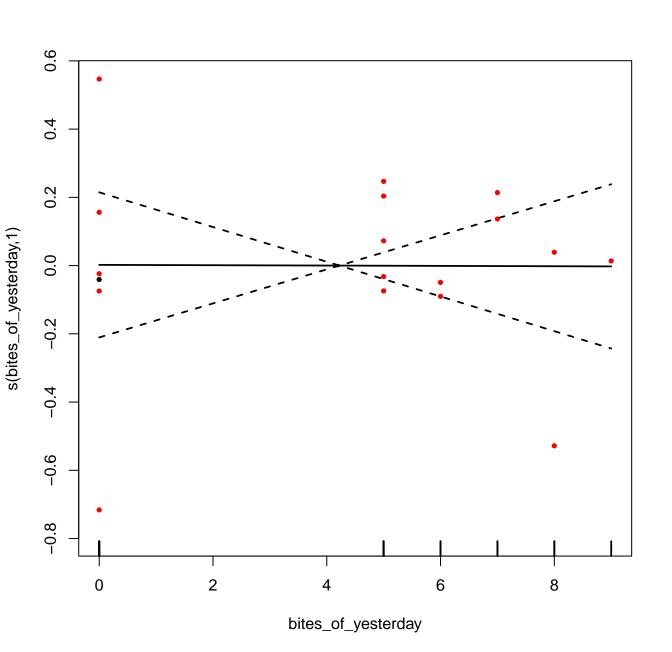
Nb excluded (LOD): 20 Nb remaining: 0

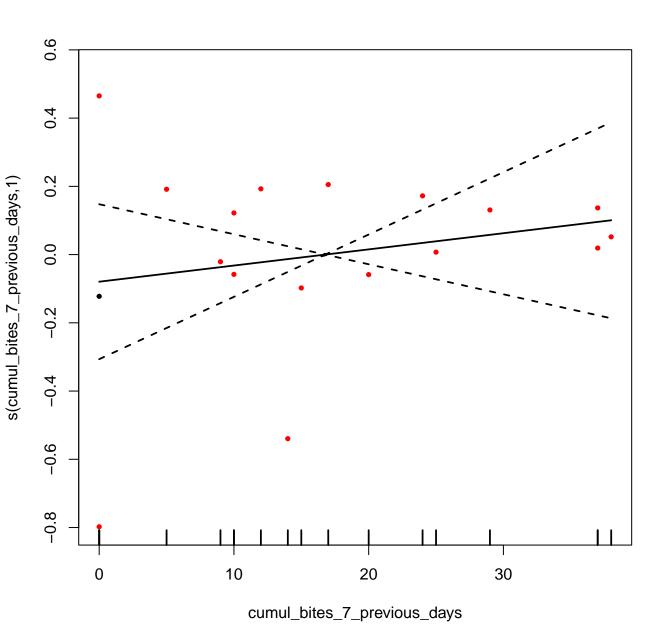
Eotaxin ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



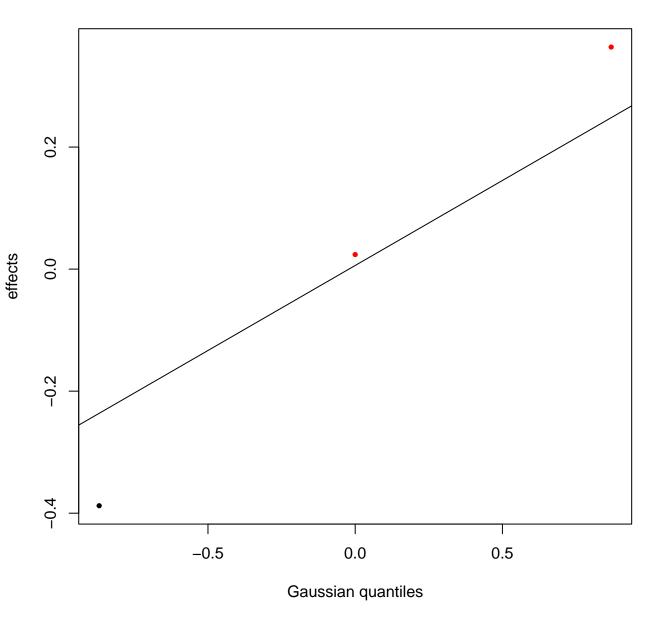


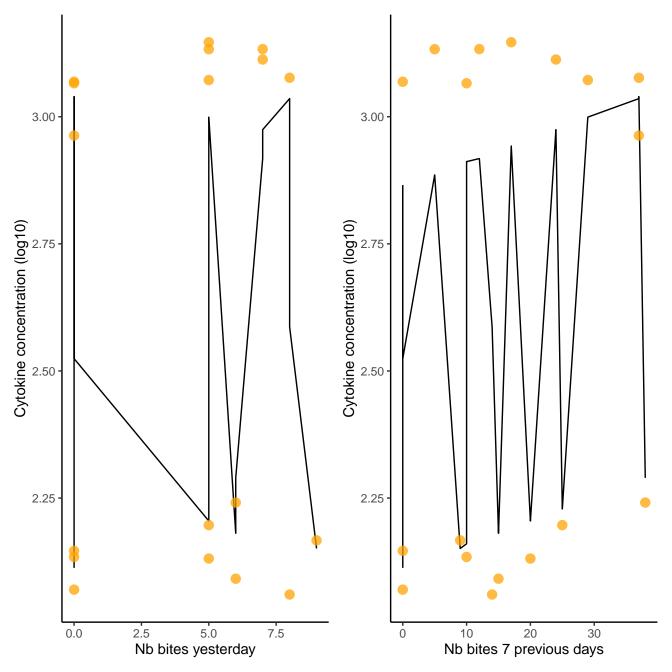
Nb excluded (LOD): 18 Nb remaining: 18

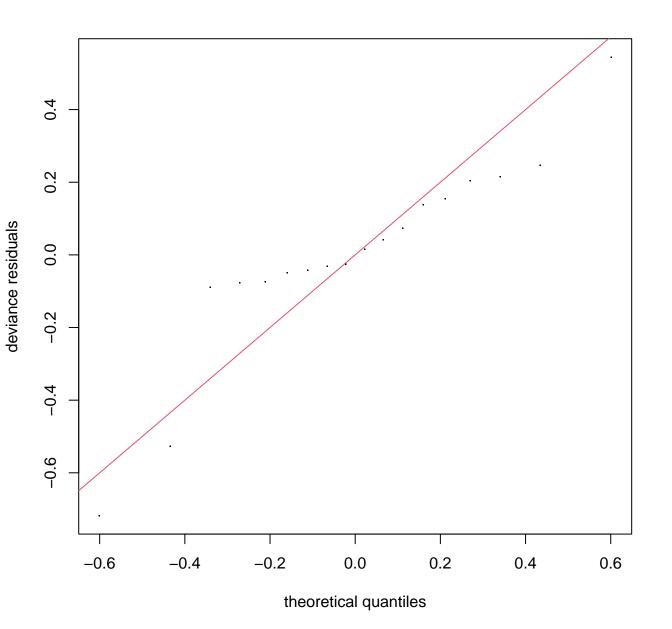




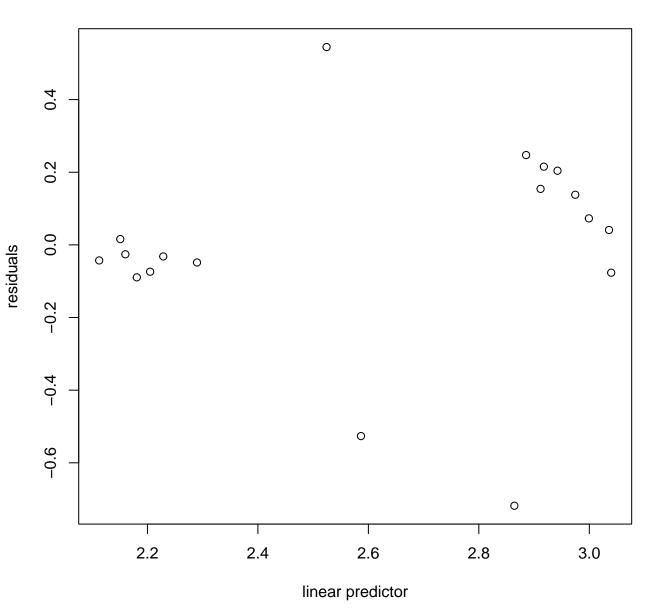




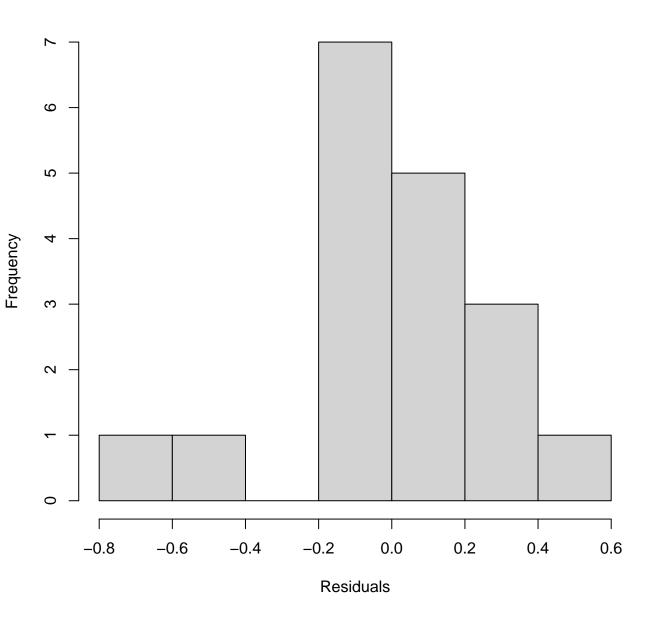




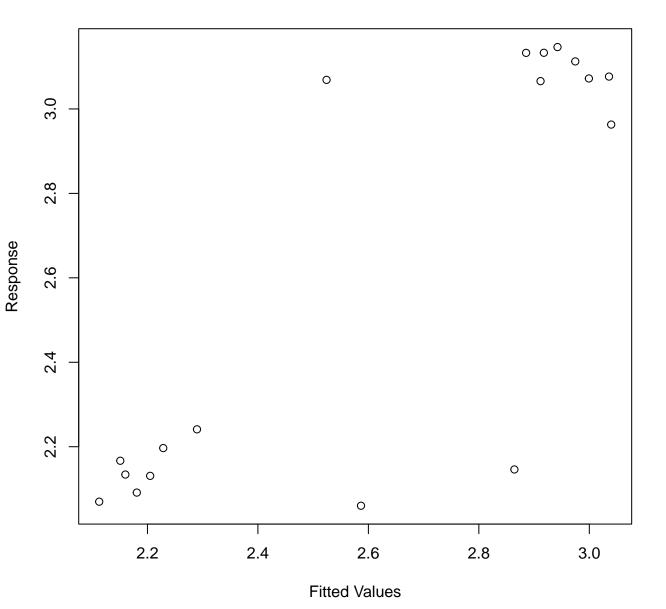
## Resids vs. linear pred.



## Histogram of residuals



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 13 iterations.

Gradient range [-2.93116e-06,4.615248e-07] (score 6.433436 & scale 0.09857692).

Hessian positive definite, eigenvalue range [1.959447e-06,9.203226].

Hessian positive definite, eigenvalue range [1.95944/e-06,9.203226 Model rank = 10 / 10

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value s(bites\_of\_yesterday) 3.00 1.00 1.16 0.65 s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.30 0.91 s(ID) 3.00 1.67 NA NA

### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF 95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.01	[1.00, Inf]	1.00	0.99	[0.00, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.01	[1.00, Inf]	1.00	0.99	[0.00, 1.00]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

Estimate Std. Error t value Pr(>|t|) (Intercept) 2.5778 0.2254 11.43 2.88e-08 \*\*\*

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 0.1 ... 1
Approximate significance of smooth terms:
```

edf Ref.df F p-value s(bites\_of\_yesterday) 1.000 1 0.00 0.984629 s(cumul\_bites\_7\_previous\_days) 1.000 1 0.49 0.496295 s(ID)

```
2 12.21 0.000489 ***
                           1.671
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
```

R-sq.(adj) = 0.591 Deviance explained = 67.9% -ML = 6.4334 Scale est. = 0.098577 n = 18

AICc [1] 23.0184



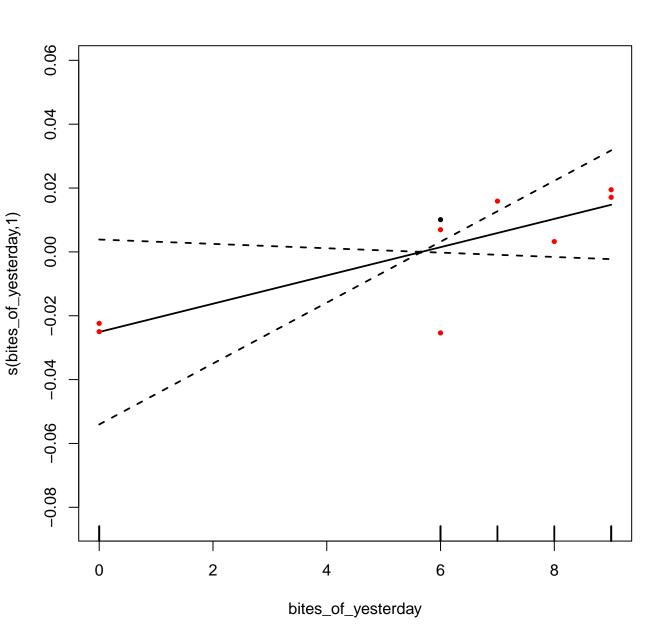
Nb excluded (LOD): 20 Nb remaining: 0

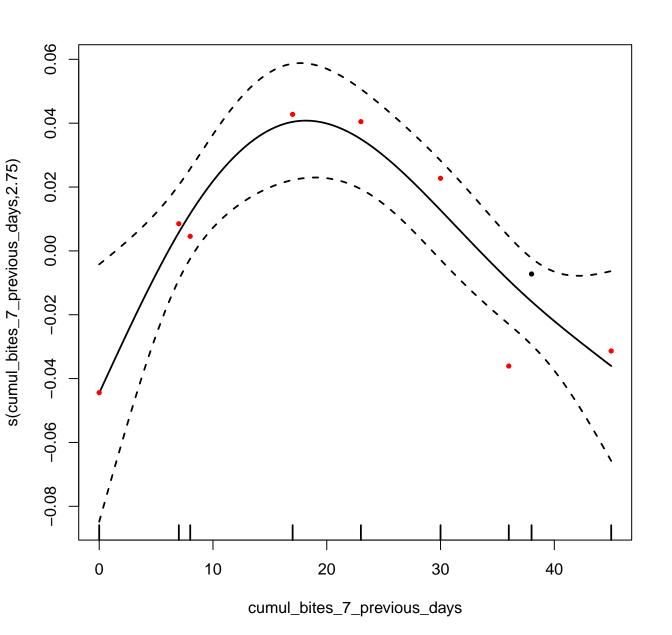
G.CSF ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



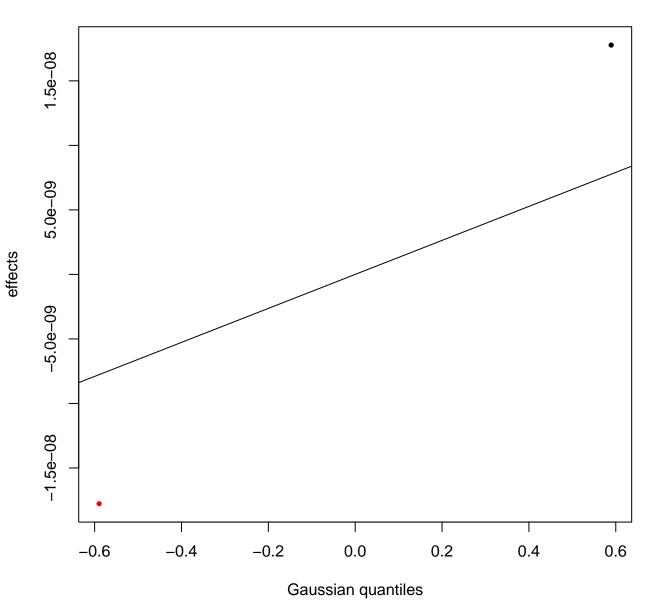


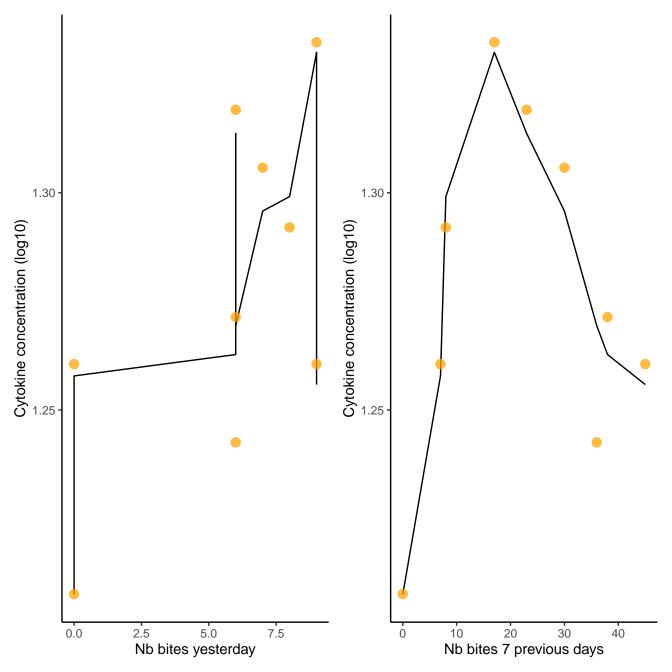
Nb excluded (LOD): 27 Nb remaining: 9

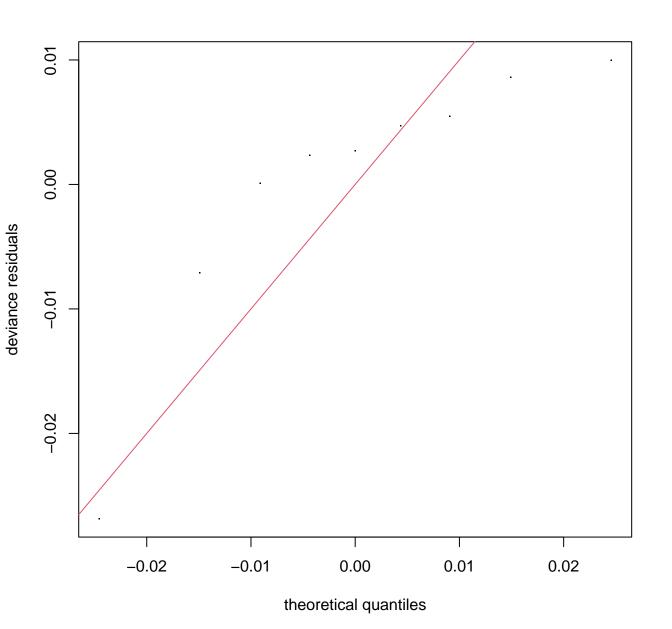




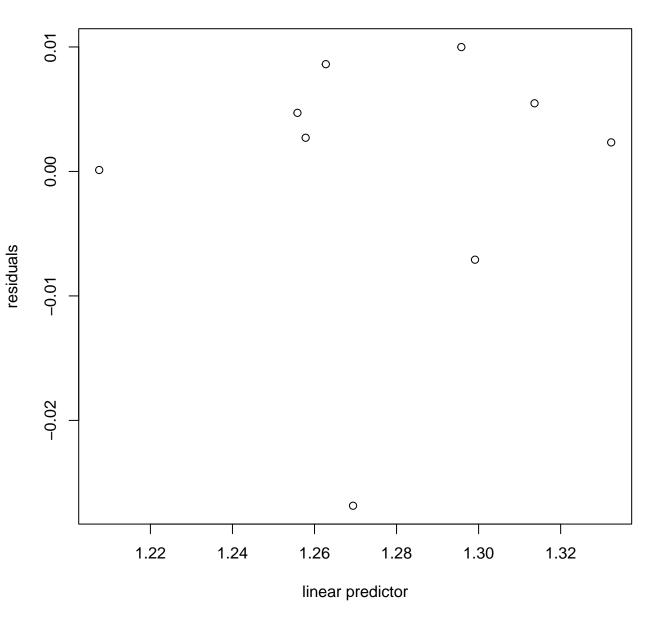




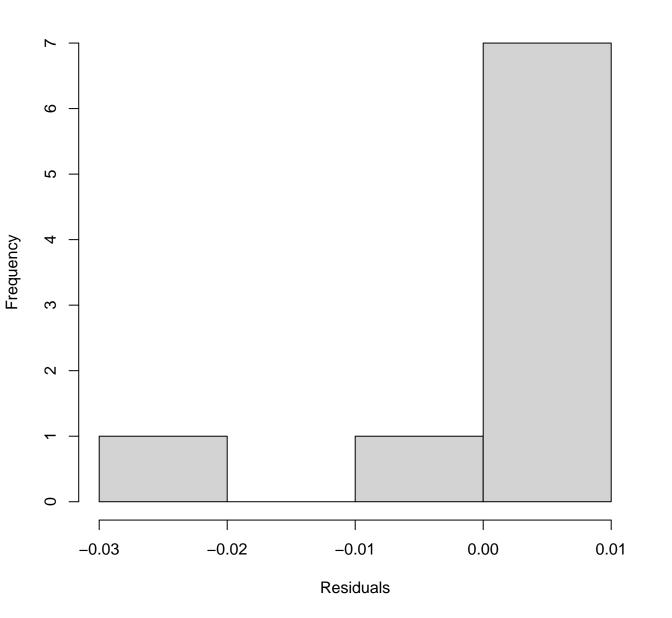




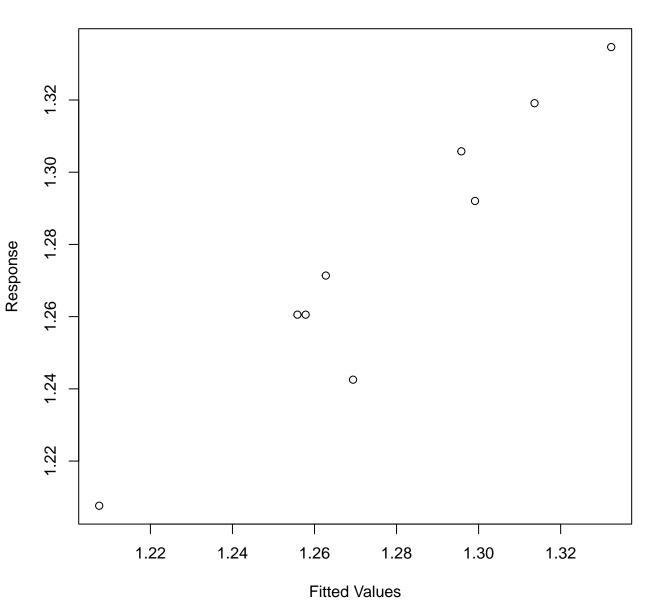
Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 11 iterations.

Gradient range [-7.906385e-06,2.358463e-06] (score -22.75527 & scale 0.0002376632).

Hessian positive definite, eigenvalue range [4.998246e-06,4.741355]. Model rank = 9 / 9

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

3.00e+00 1.00e+00 1.58

s(bites\_of\_yesterday) 0.95 s(cumul\_bites\_7\_previous\_days) 3.00e+00 2.75e+00 1.59 0.97

s(ID) 2.00e+00 2.93e-06 NA NA

### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95%	CI	Increased	SE	Tolerance	Tolerance	95%	CI
s(bites_of_yesterday,	k = 4)	1.29	[1.08,	2.1	L5]	1.	14	0.77	[0.46,	0.9	93]
s(cumul_bites_7_previous_days,	k = 4)	1.29	[1.08,	2.1	15]	1.	14	0.77	[0.46,	0.9	93]

Approximate significance of smooth terms:

edf Ref.df F p-value
s(bites\_of\_yesterday) 1.000e+00 1.00 3.003 0.1582

```
s(bites_of_yesterday) 1.000e+00 1.00 3.003 0.1582 s(cumul_bites_7_previous_days) 2.749e+00 2.95 9.234 0.0306 * s(ID) 2.934e-06 1.00 0.000 0.5430 ---
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 1
```

R-sq.(adj) = 0.851 Deviance explained = 92.1% -ML = -22.755 Scale est. = 0.00023766 n = 9 AICc [1] -4.056483



Nb excluded (LOD): 20 Nb remaining: 0



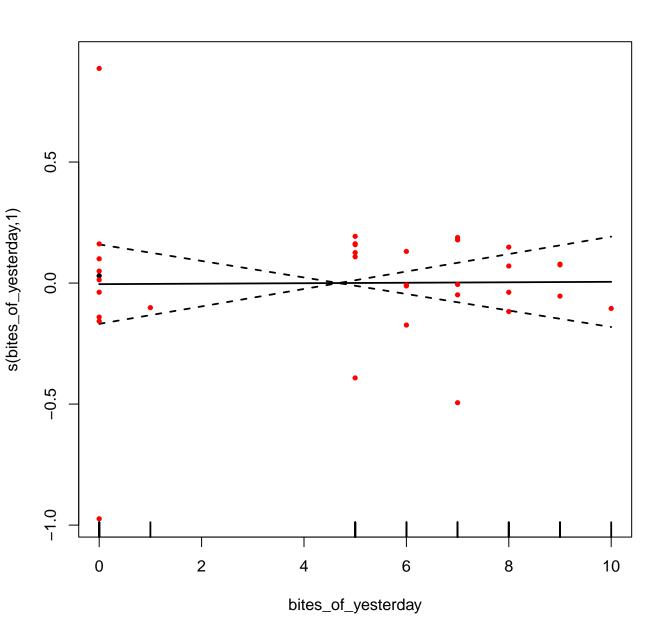
GM.CSF ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

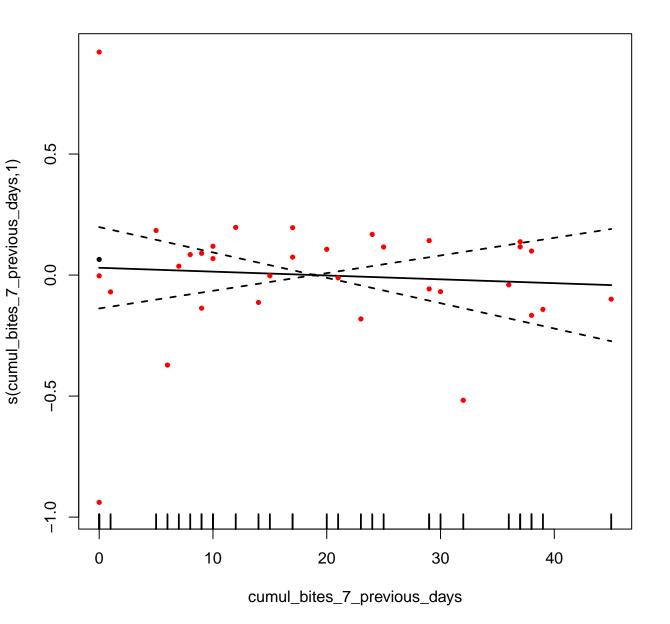




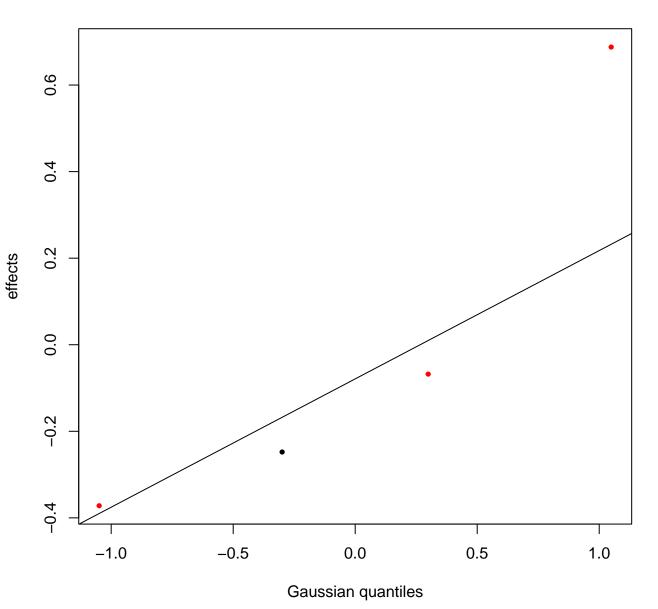
Nb excluded (LOD): 2

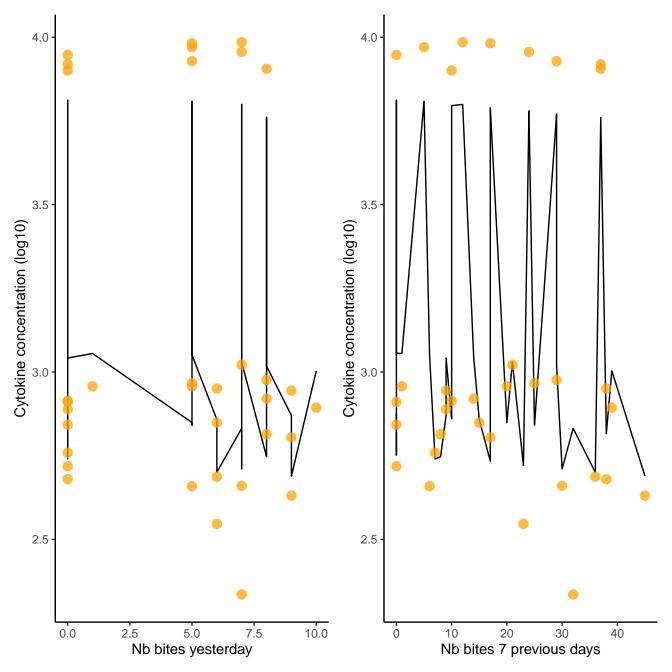
Nb remaining: 34

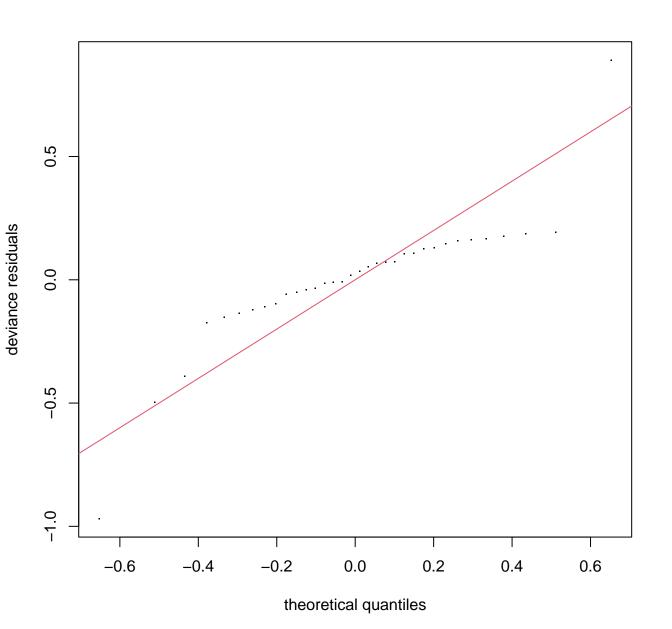




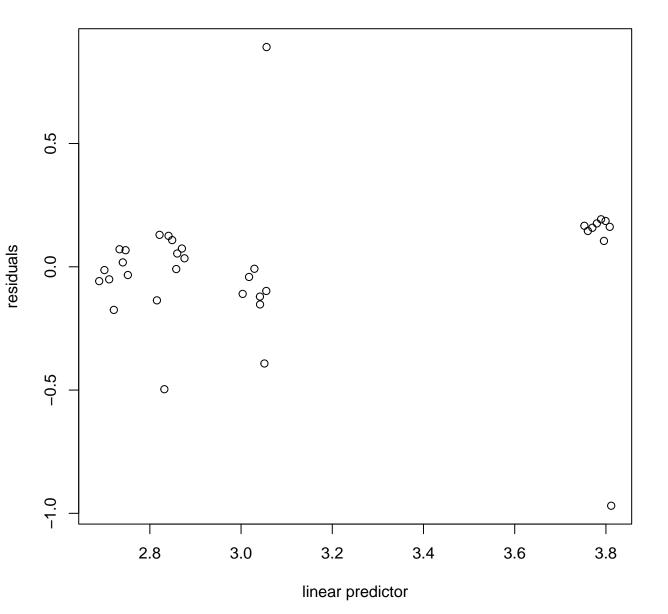
s(ID,2.84)



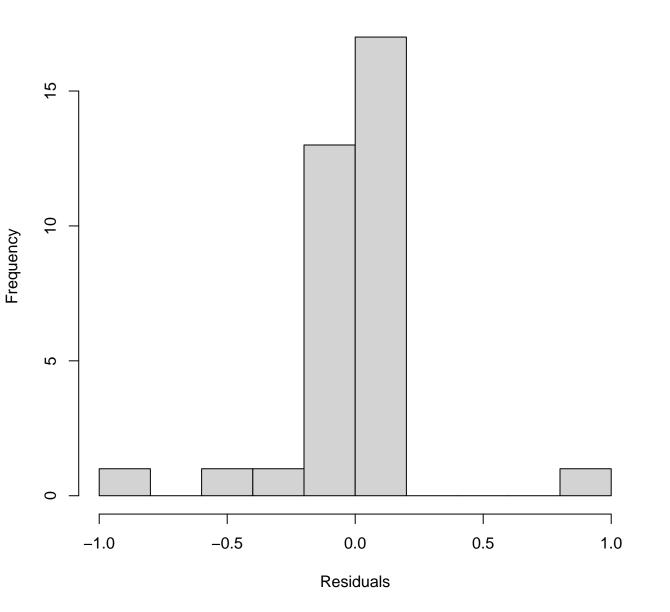




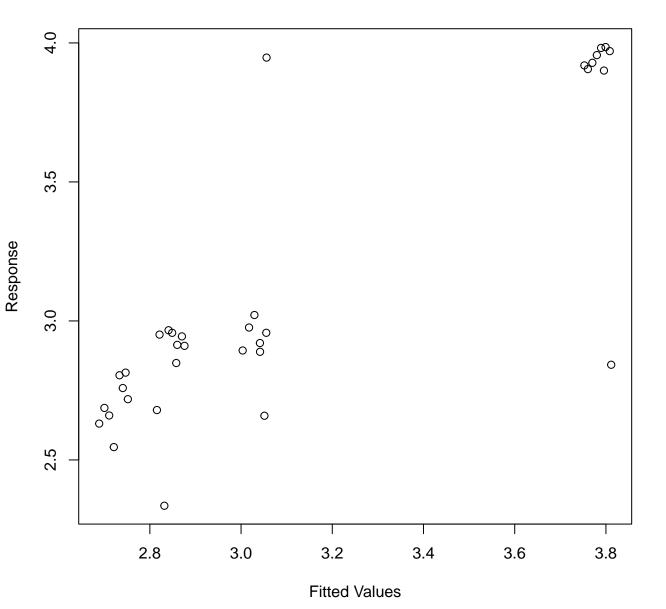
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 13 iterations.

Gradient range [-2.895414e-06,2.17796e-07] (score 11.98119 & scale 0.08981482).

Hessian positive definite, eigenvalue range [2.308507e-06,17.23273]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value s(bites\_of\_yesterday) 3.00 1.00 1.03 0.53

s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.39 0.97 s(ID) 4.00 2.84 NA NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI	
s(bites_of_yesterday, k	= 4)	1.11	[1.01,	3.23]	1.06	0.90	[0.31, 0.99]	
s(cumul bites 7 previous days k	= 4)	1 11	[1 01	3 231	1 06	0.90	[0 31 0 99]	

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

```
Estimate Std. Error t value Pr(>|t|)
(Intercept) 3.0982
                     0.2249 13.78 4.87e-14 ***
```

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1

```
Approximate significance of smooth terms:
                                edf Ref.df
                                              F p-value
s(bites_of_yesterday)
                                        1 0.003
                             1.000
                                                   0.957
                                        1 0.128
                                                   0.723
```

s(cumul\_bites\_7\_previous\_days) 1.000 2.839 3 22.970 <2e-16 \*\*\* s(ID)

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
```

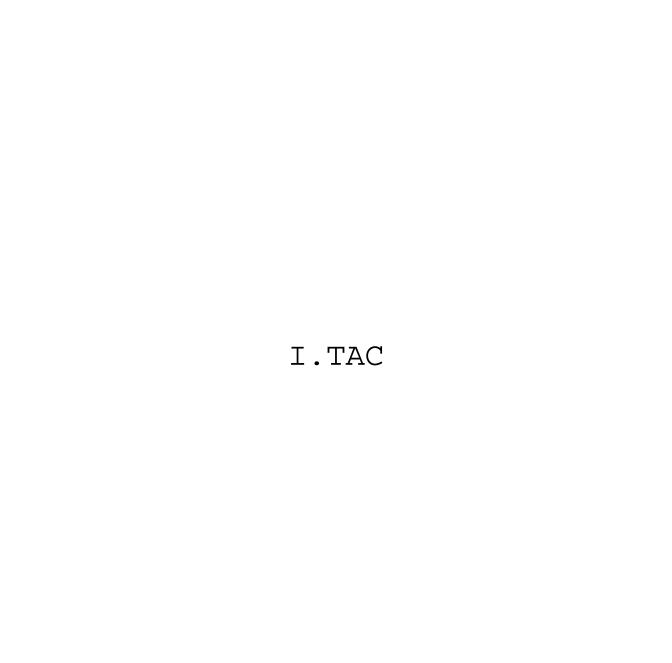
R-sg.(adj) = 0.676 Deviance explained = 72.3% -ML = 11.981 Scale est. = 0.089815 n = 34

AICc [1] 26.3336



Nb excluded (LOD): 20 Nb remaining: 0

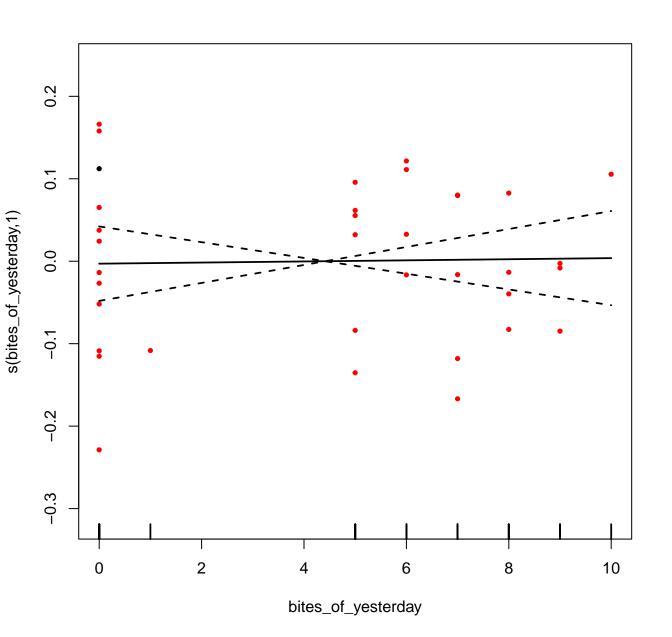
HGF ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

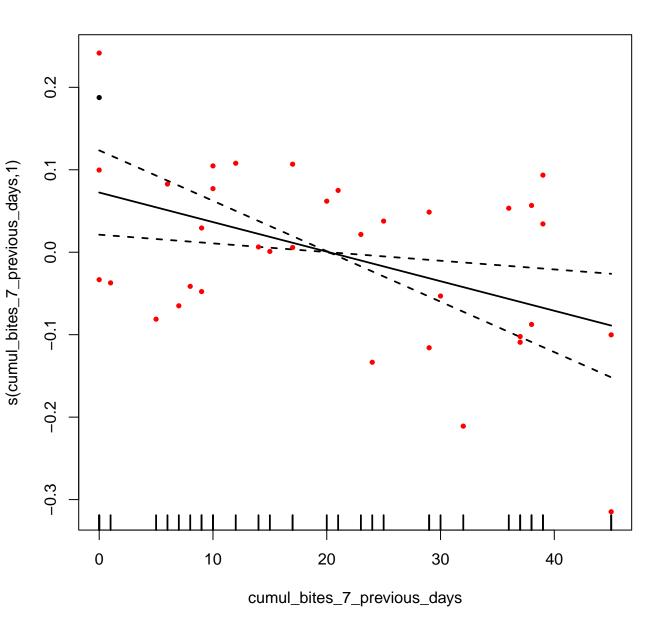




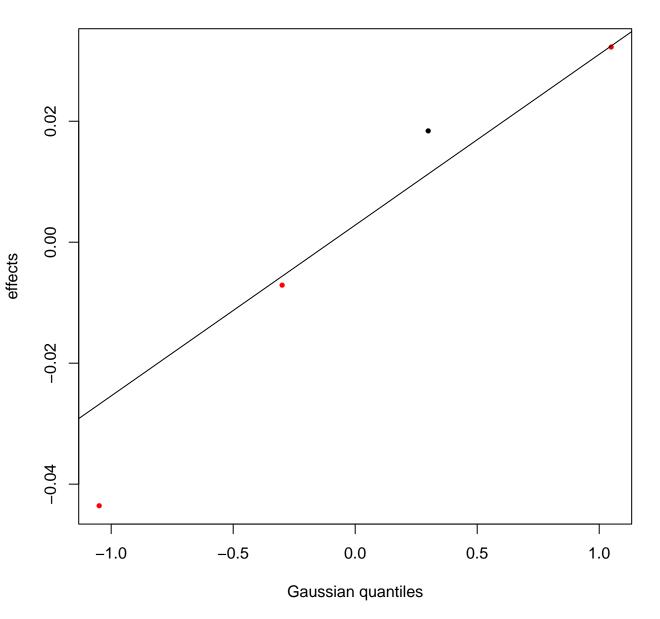
Nb excluded (LOD): 0

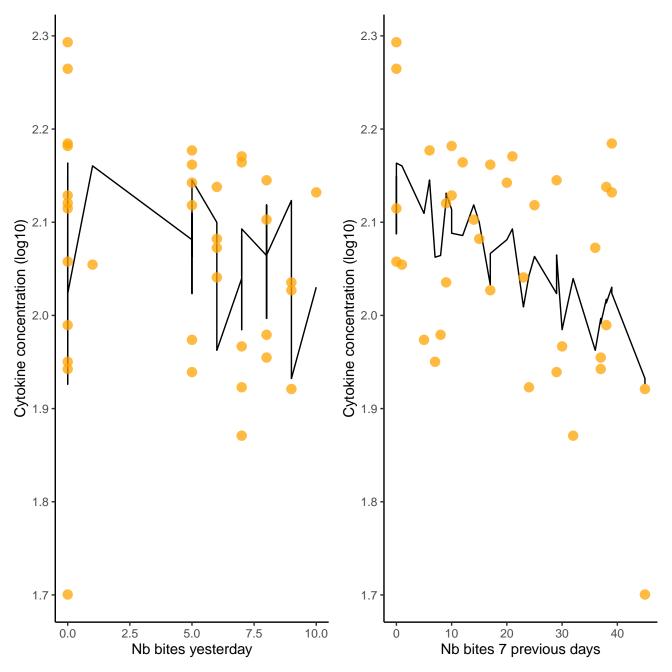
Nb remaining: 36

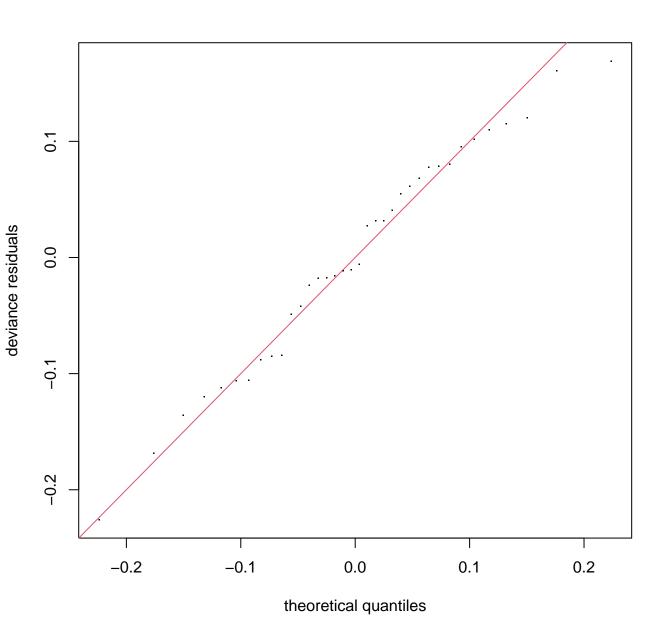




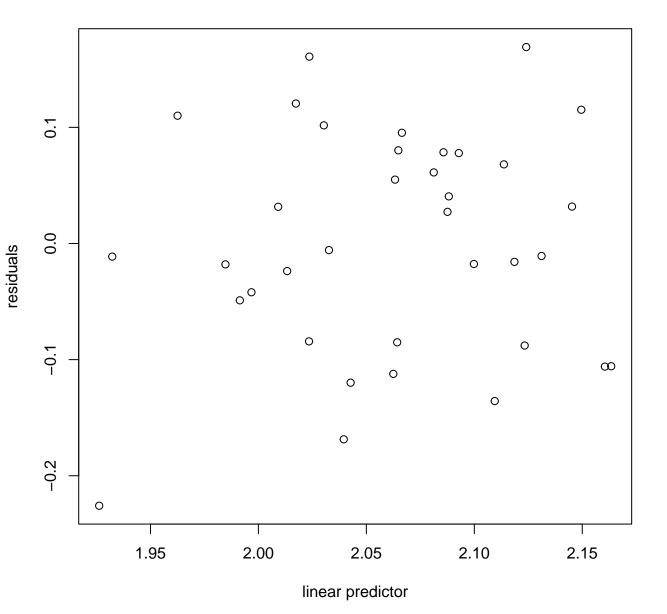




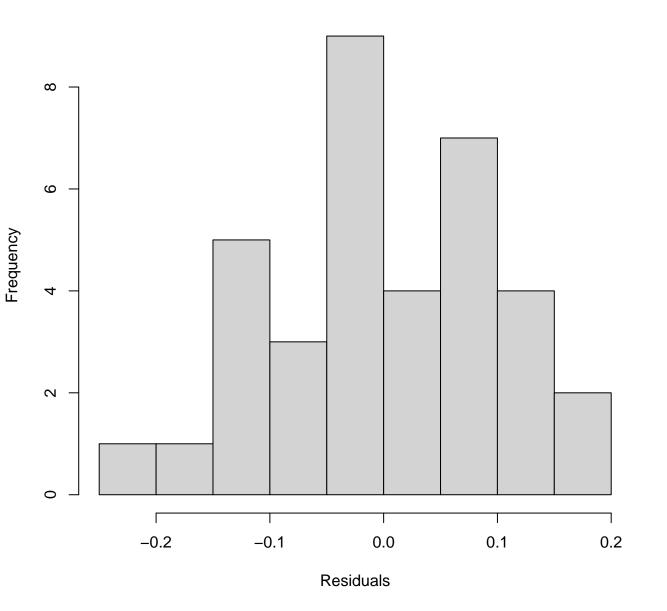




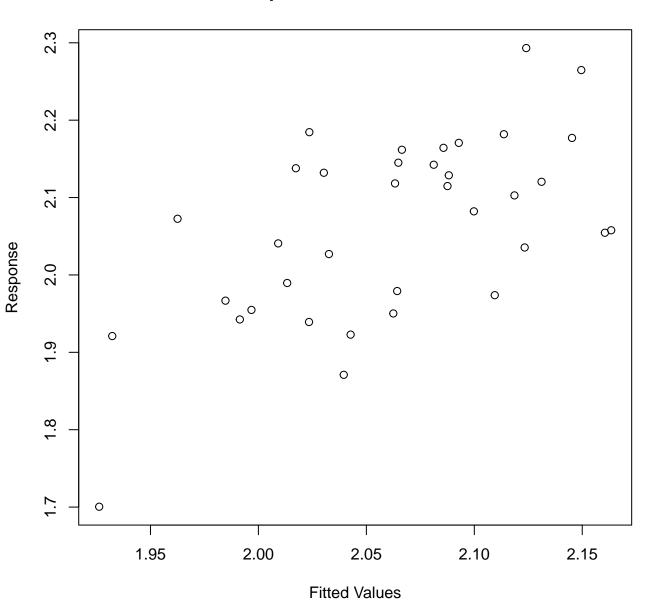
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 11 iterations.

Gradient range [-9.919645e-06,5.394079e-07] (score -30.83559 & scale 0.01034001).

Hessian positive definite, eigenvalue range [4.613939e-06,18.07603]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value s(bites\_of\_yesterday) 1.29 0.94 3.00 1.00

s(cumul\_bites\_7\_previous\_days) 3.00 1.00 0.24 0.90 s(ID) 4.00 1.72 NA NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

Estimate Std. Error t value Pr(>|t|) (Intercept) 2.06172 0.02601 79.26 <2e-16 \*\*\*

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 0.1 ... 1
Approximate significance of smooth terms:
```

edf Ref.df F p-value 1 0.017 0.89635 s(bites\_of\_yesterday) 1.000 s(cumul\_bites\_7\_previous\_days) 1.000 1 8.022 0.00805 \*\*

```
1.719
                                    3 1.661 0.05069 .
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
```

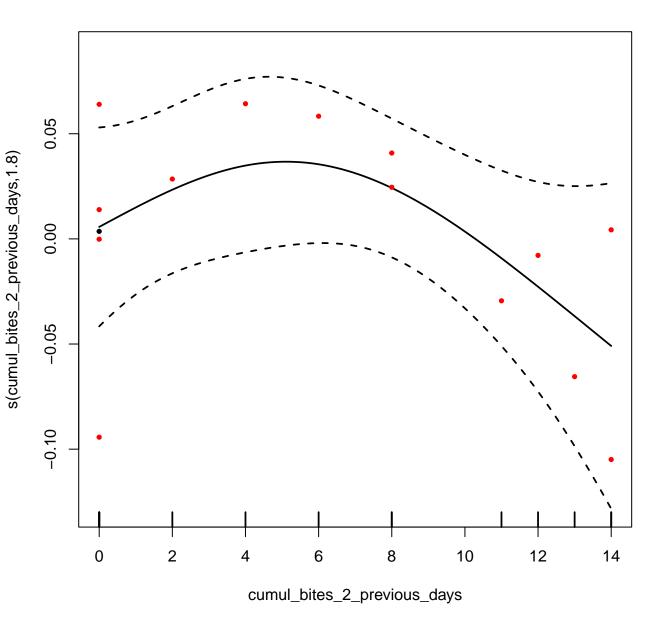
```
R-sq.(adj) = 0.277 Deviance explained = 35.4%
-ML = -30.836 Scale est. = 0.01034 n = 36
```

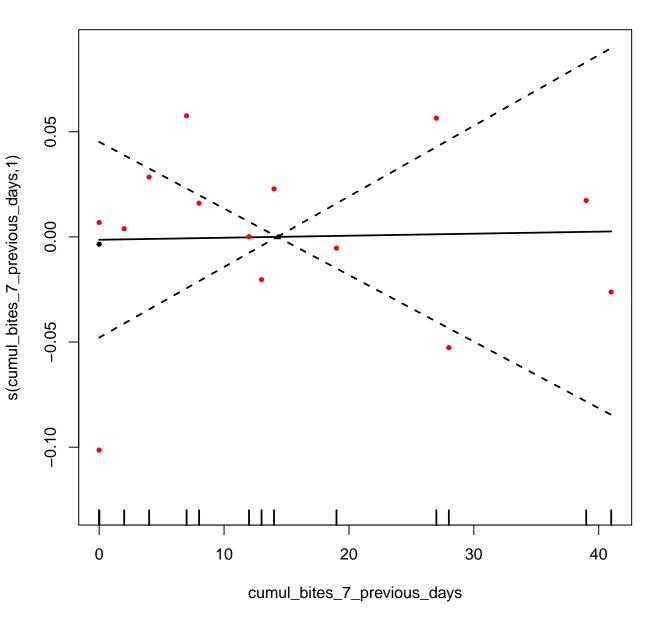
s(ID)

AICc [1] -51.20138

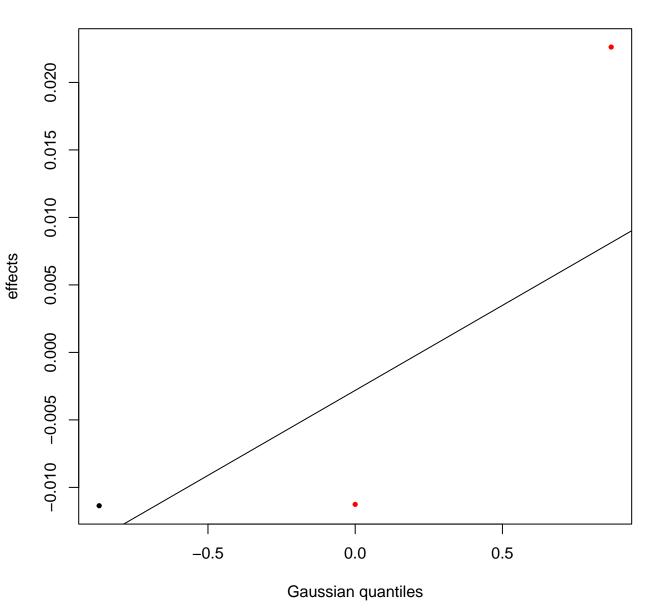


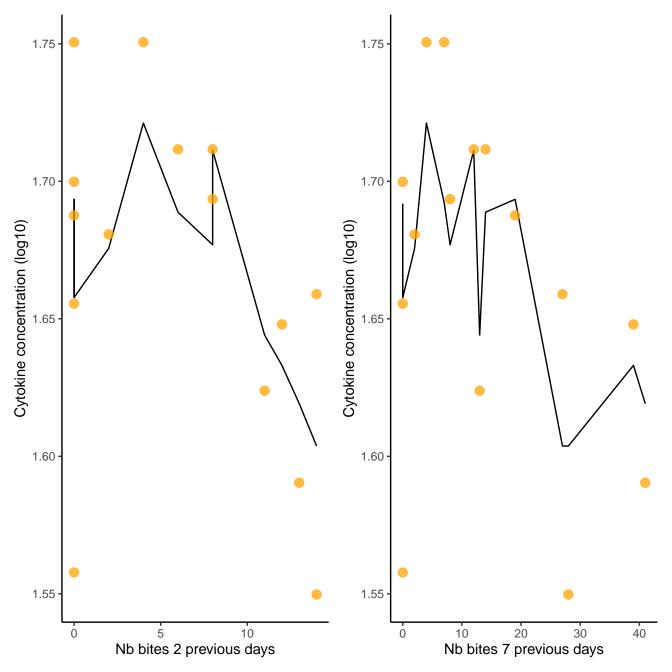
# Nb excluded (LOD): 5 Nb remaining: 15

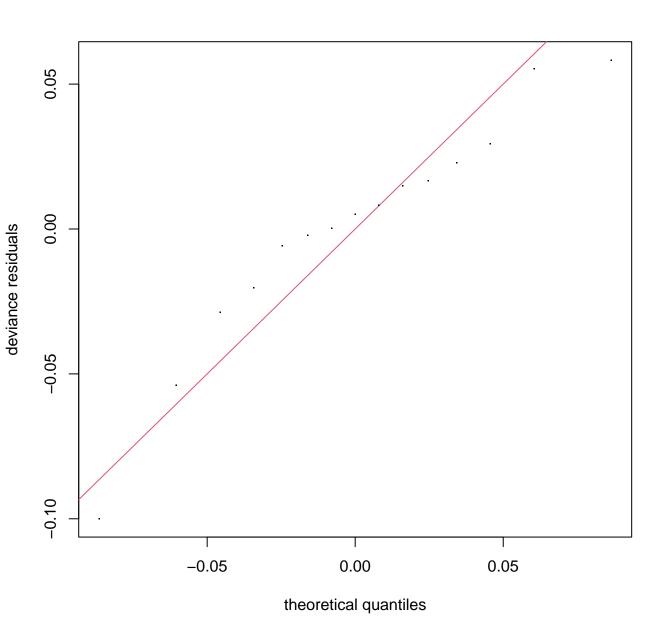




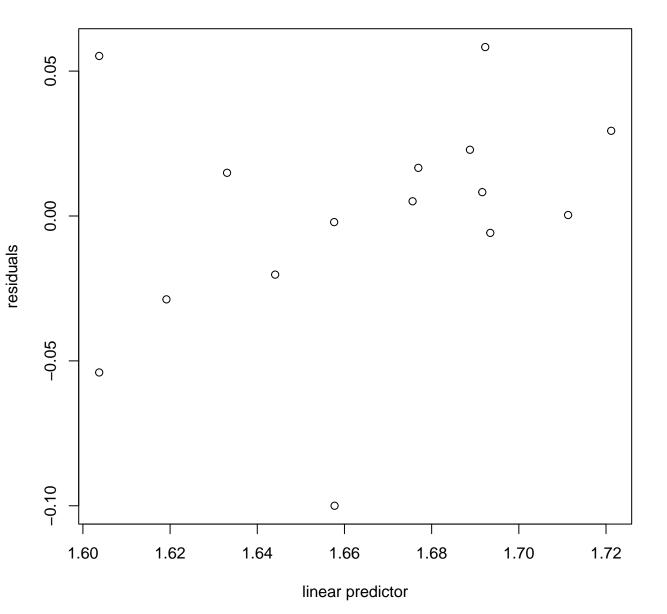




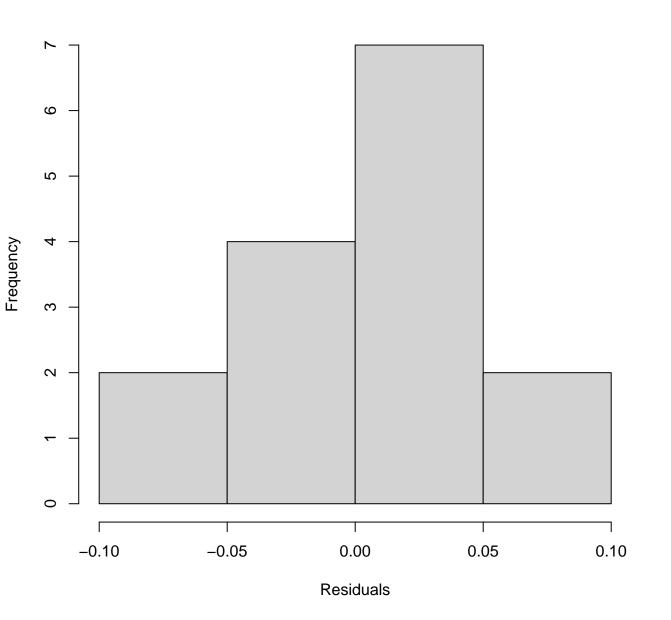




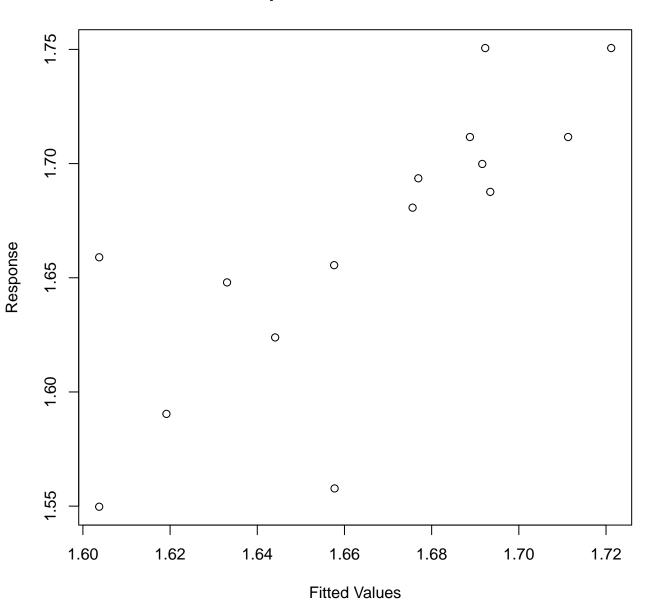
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 10 iterations.

Gradient range [-8.195889e-06,7.188003e-06] (score -22.86397 & scale 0.002223217).

Hessian positive definite, eigenvalue range [8.195822e-06,7.671958]. Model rank = 10 / 10

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value s(cumul\_bites\_2\_previous\_days) 3.00 1.80 1.04 0.51

s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.22 0.69 s(ID) 3.00 1.03 NA NA # Check for Multicollinearity

Low Correlation

Moderate Correlation

Term VIF VIF 95% CI Increased SE Tolerance Tolerance 95% CI s(cumul\_bites\_2\_previous\_days, k = 4) 6.79 [3.96, 12.33] 2.61 0.15 [0.08, 0.25]

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ....... 1

1.027 2.000 1.324 0.123

F p-value

edf Ref.df

(Intercept) 1.66469 0.01826 91.14 3.75e-16 \*\*\*

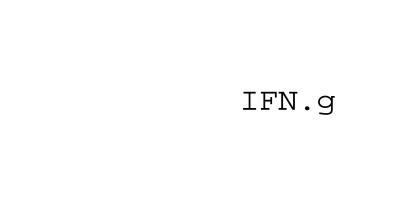
R-sq.(adj) = 0.426 Deviance explained = 58.3% -ML = -22.864 Scale est. = 0.0022232 n = 15

s(cumul\_bites\_2\_previous\_days) 1.801 2.158 1.589 0.234 s(cumul\_bites\_7\_previous\_days) 1.000 1.000 0.004 0.954

Approximate significance of smooth terms:

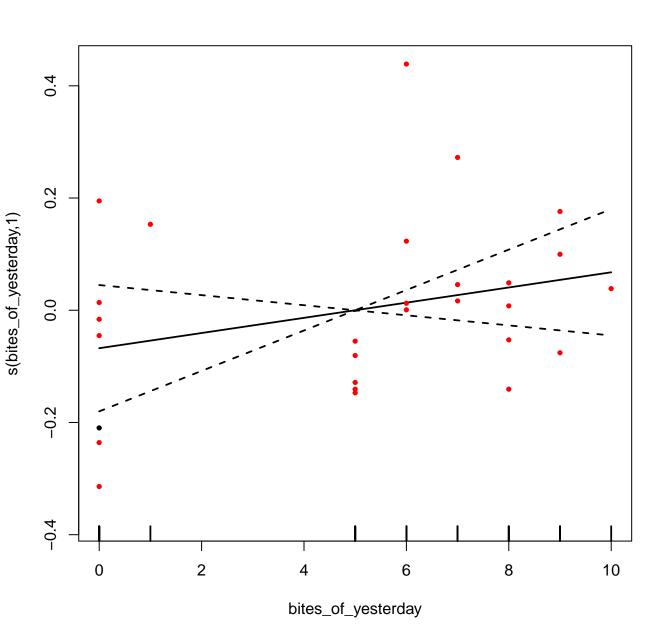
s(ID)

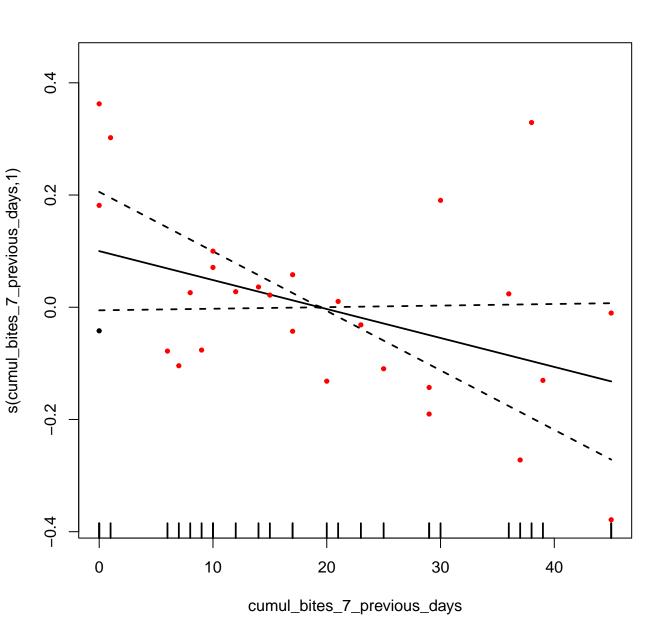
AICc [1] -27.53527



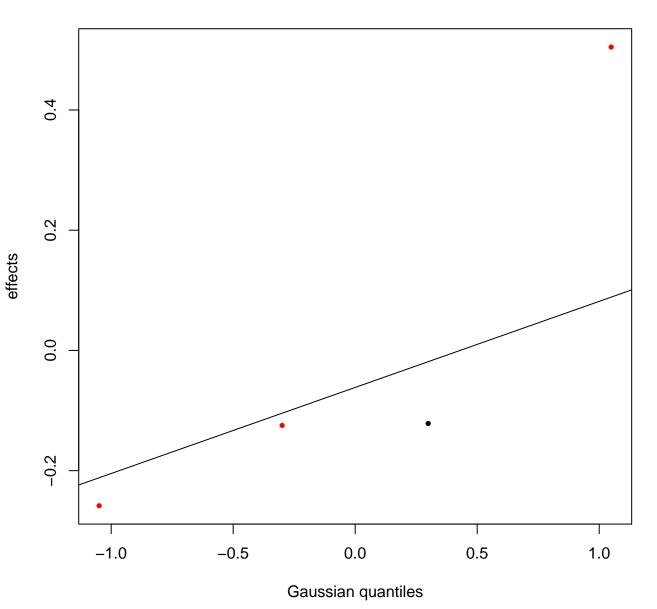


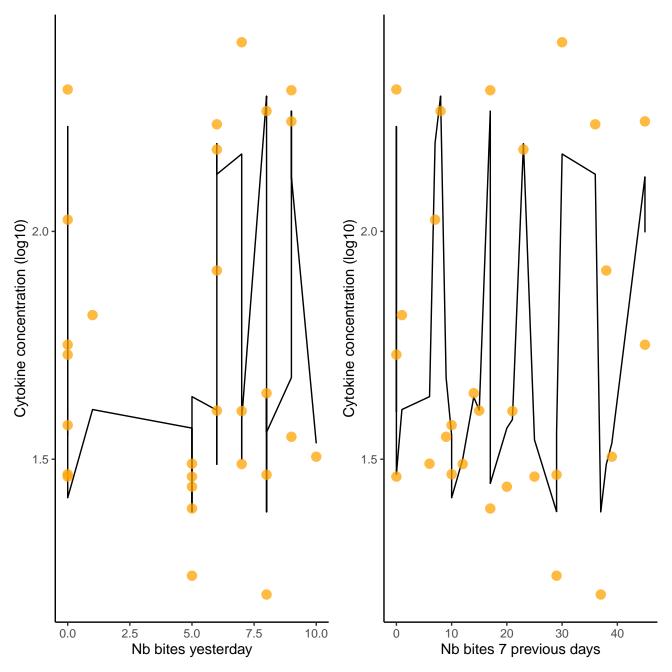
Nb excluded (LOD): 8
Nb remaining: 28

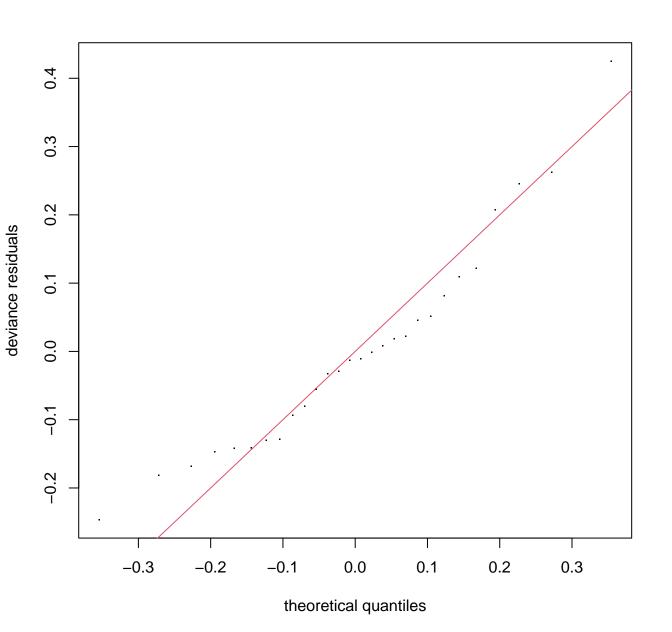




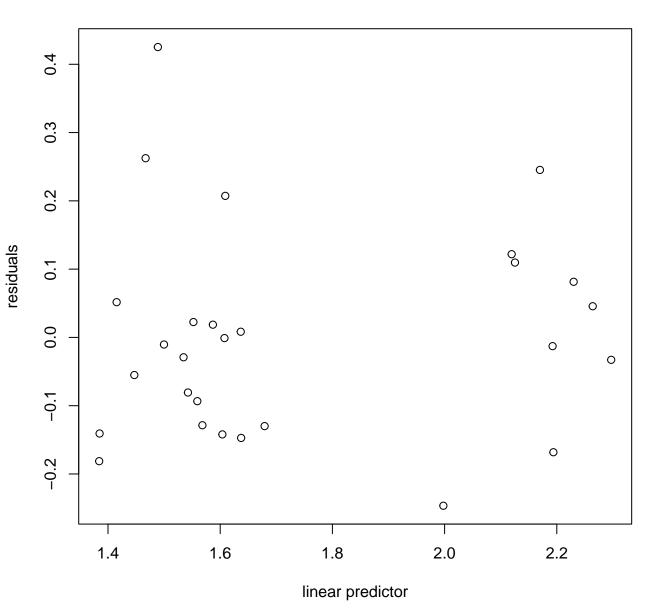
s(ID,2.87)



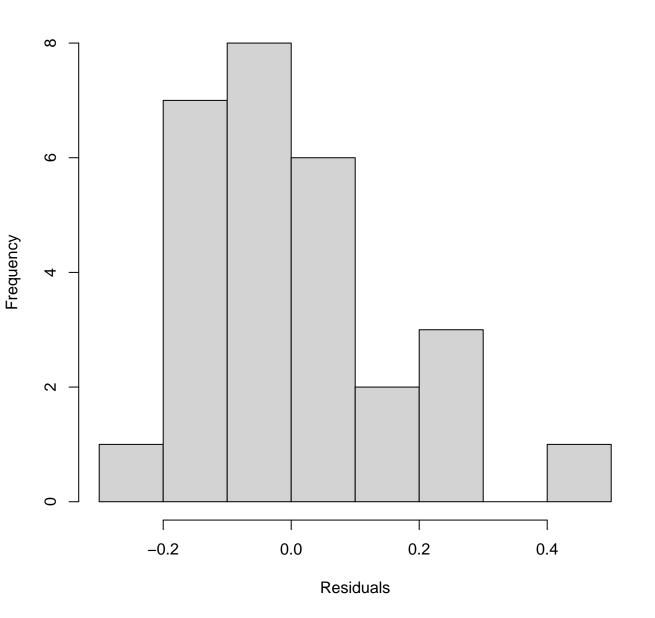




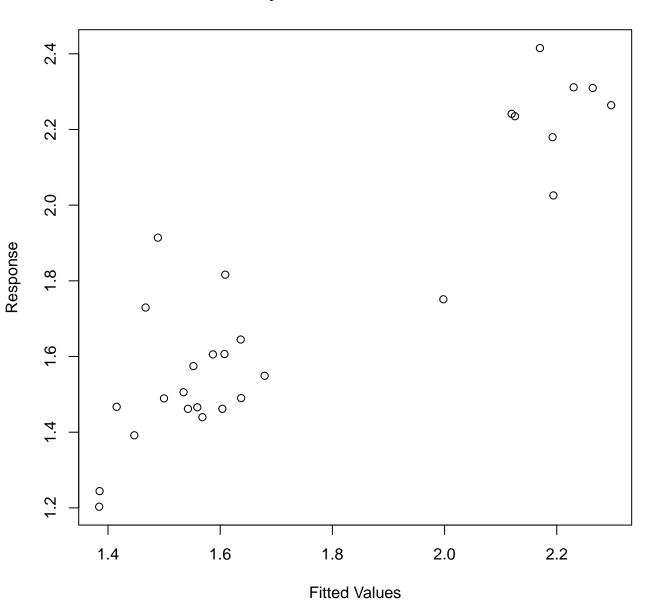
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 13 iterations. Gradient range [-2.80738e-06,3.640827e-07]

(score -4.876378 & scale 0.02844961). Hessian positive definite, eigenvalue range [1.130909e-06,14.29635].

Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(bites\_of\_yesterday) 0.36

3.00 1.00 0.97 s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.05 0.45 s(ID) 4.00 2.87 NA NA

### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.12	[1.01,	3.39]	1.06	0.89	[0.30, 0.99]
s(cumul_bites_7_previous_days, k	= 4)	1.12	[1.01,	3.39]	1.06	0.89	[0.30, 0.99]

```
Family: gaussian
Link function: identity

Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days, k = 4) + s(ID, bs = "re", k = 2)

Parametric coefficients:
```

Estimate Std. Error t value Pr(>|t|)
(Intercept) 1.6929 0.1614 10.49 4.73e-10 \*\*\*

--- Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 1

Approximate significance of smooth terms:

edf Ref.df F p-value

s(bites\_of\_yesterday) 1.000 1 1.444 0.2423

s(cumul\_bites\_7\_previous\_days) 1.000 1 3.597 0.0711 .

s(ID) 2.875 3 32.666 <2e-16 \*\*\*

R-sq.(adj) = 0.782 Deviance explained = 82.2% -ML = -4.8764 Scale est. = 0.02845 n = 28 AICc [1] -7.328022



Nb excluded (LOD): 20 Nb remaining: 0

IFN.g ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

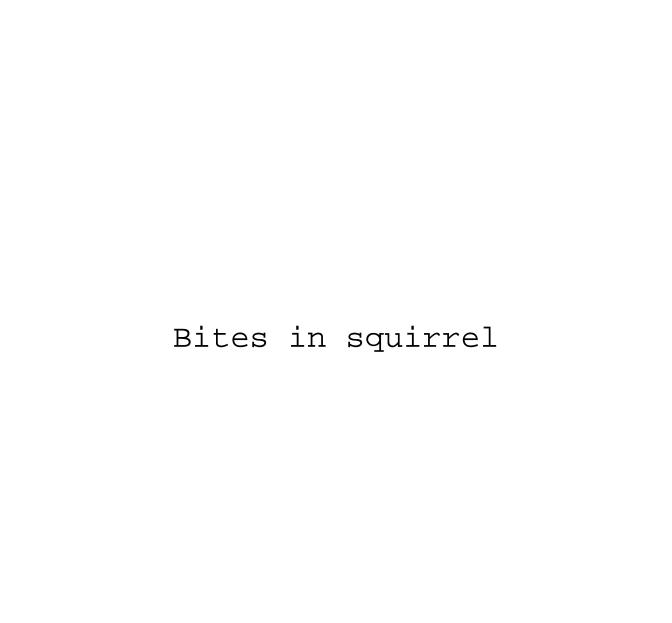
IL.10



Nb remaining: 0

Nb excluded (LOD): 36

IL.10 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



Nb excluded (LOD): 20 Nb remaining: 0

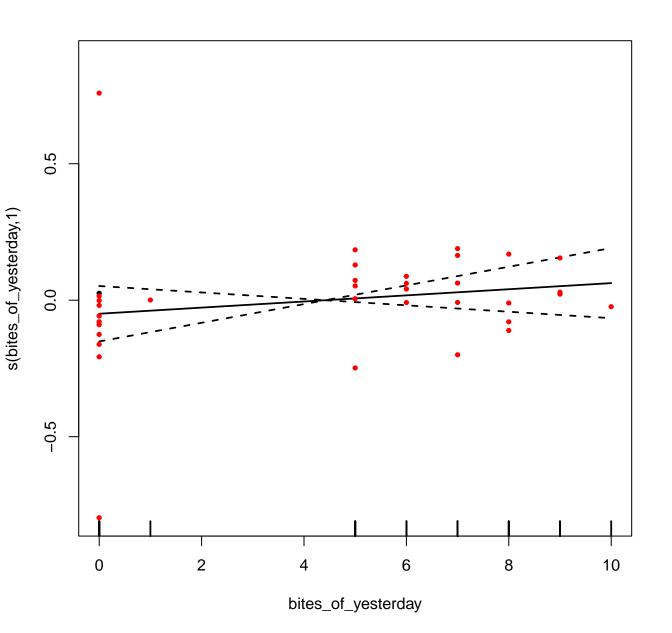
IL.10 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

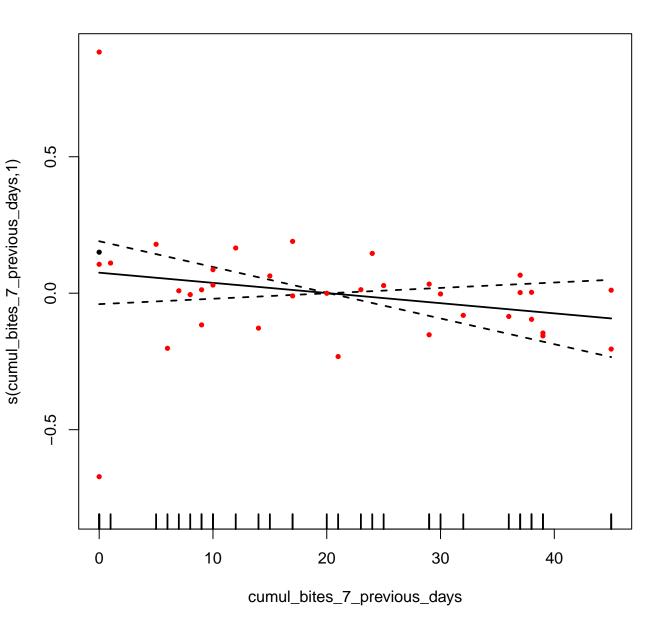
IL.12



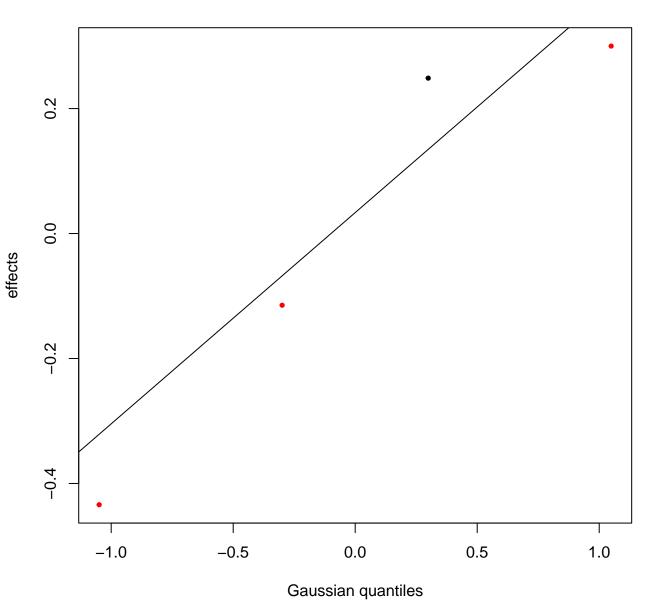
Nb excluded (LOD): 0

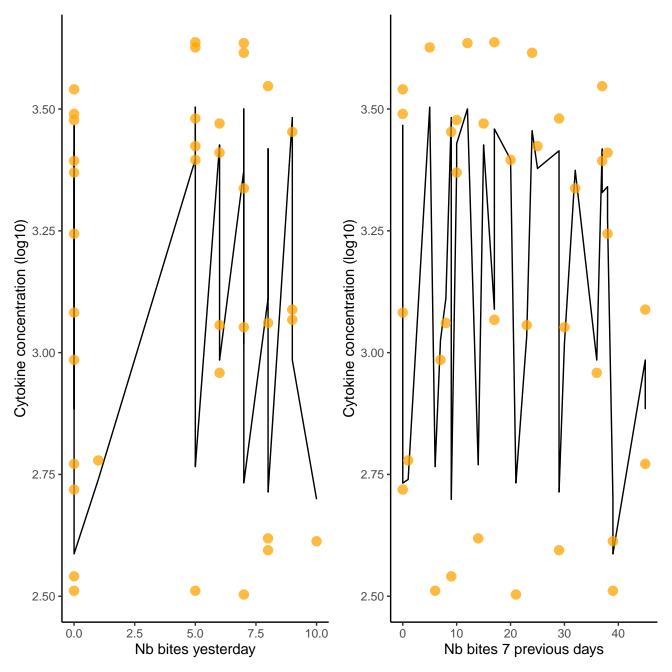
Nb remaining: 36

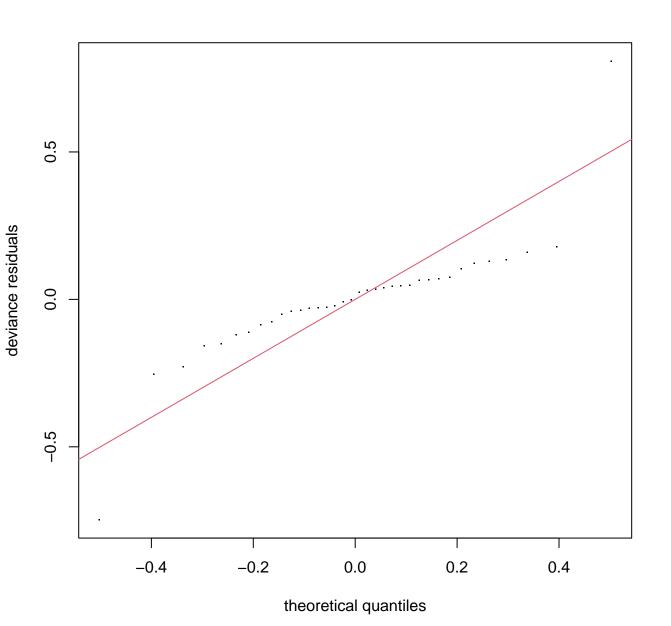




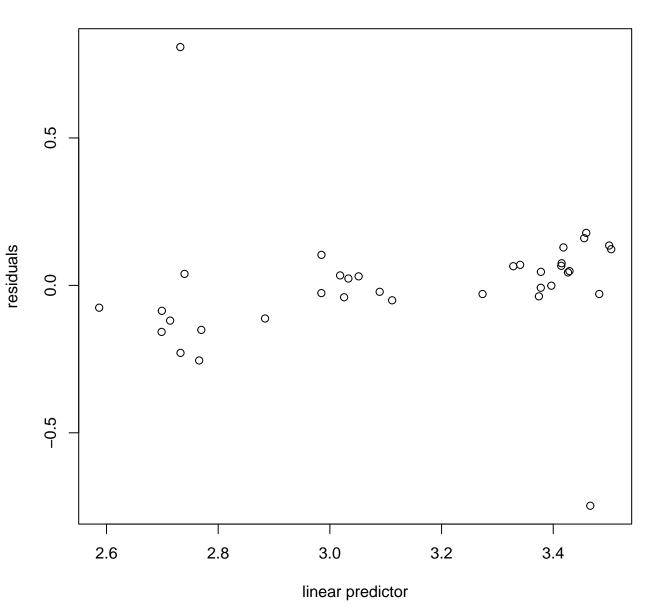




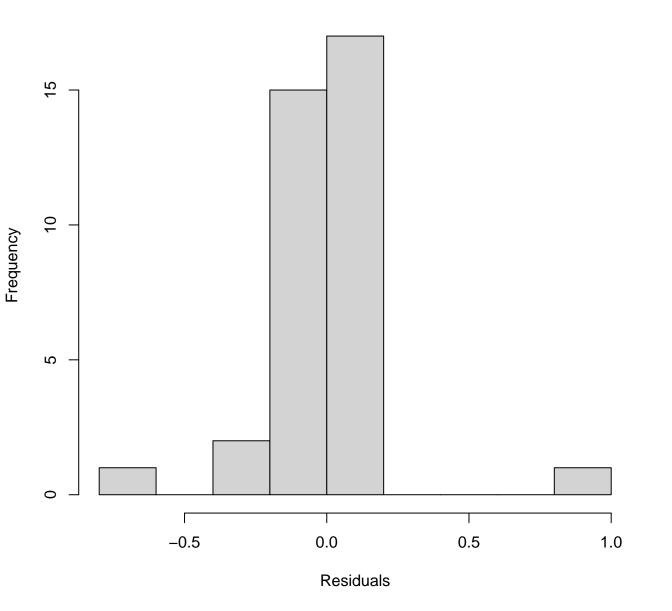




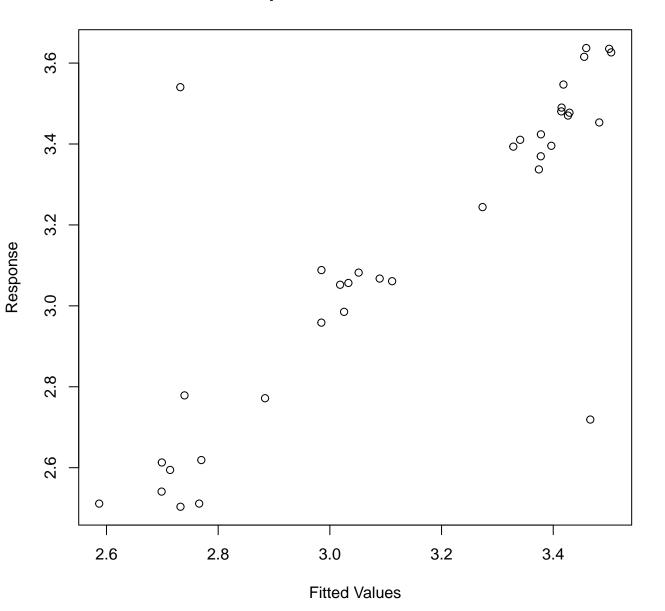
### Resids vs. linear pred.



# **Histogram of residuals**



### Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 15 iterations. Gradient range [-1.039541e-06,5.268573e-08]

(score 2.533338 & scale 0.05213652). Hessian positive definite, eigenvalue range [7.566821e-07,18.21747].

Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

s(bites\_of\_yesterday)

s(ID)

k' edf k-index p-value 3.00 1.00

s(cumul\_bites\_7\_previous\_days) 3.00 1.00 4.00 2.83

1.44

NA

1.03

0.53

0.99

NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

```
Estimate Std. Error t value Pr(>|t|)
                   0.1625 19.32 <2e-16 ***
(Intercept) 3.1406
```

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1

-ML = 2.5333 Scale est. = 0.052137 n = 36

```
Approximate significance of smooth terms:
                               edf Ref.df
                                             F p-value
s(bites_of_yesterday)
                                     1 0.952
                             1.000
                                                   0.337
s(cumul_bites_7_previous_days) 1.000
                                        1 1.705
                                                   0.202
                             2.834
                                        3 21.436 <2e-16 ***
s(ID)
```

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
R-sq.(adj) = 0.646 Deviance explained = 69.5%
```

AICc [1] 7.355133



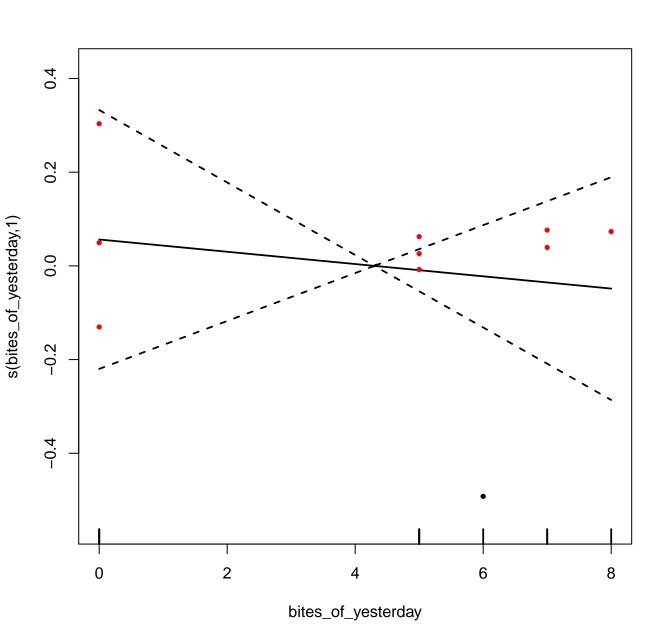
Nb excluded (LOD): 20 Nb remaining: 0

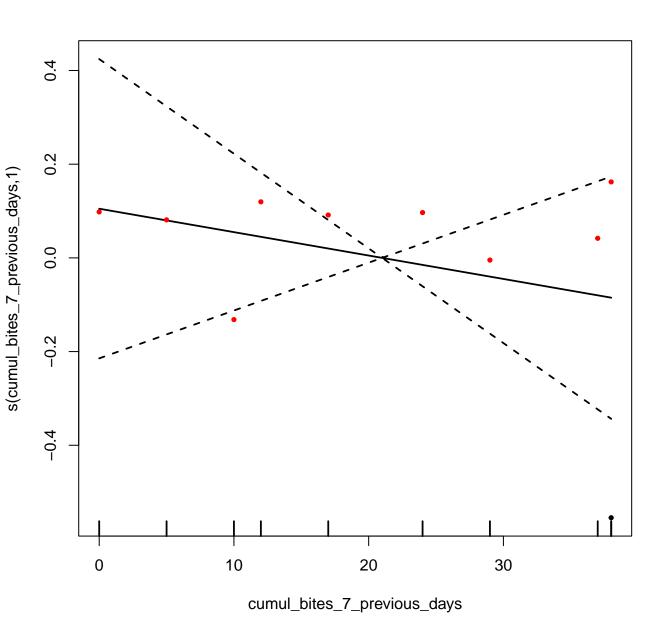
IL.12 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

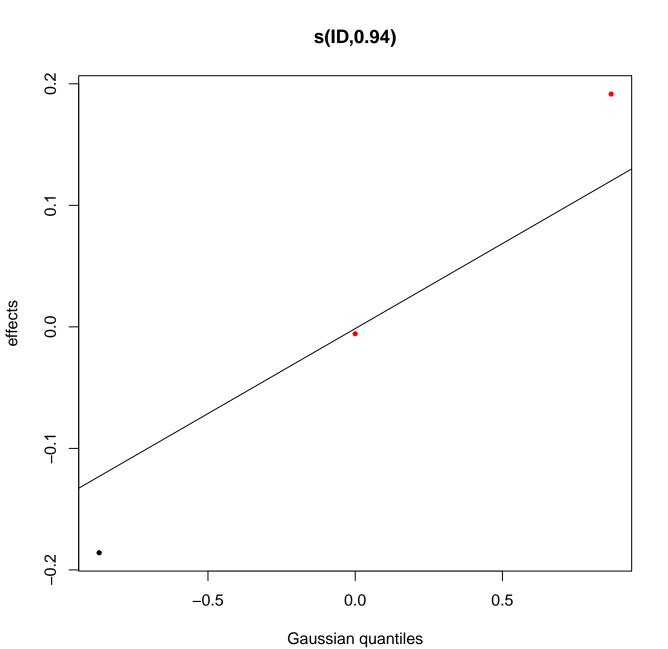
IL.15

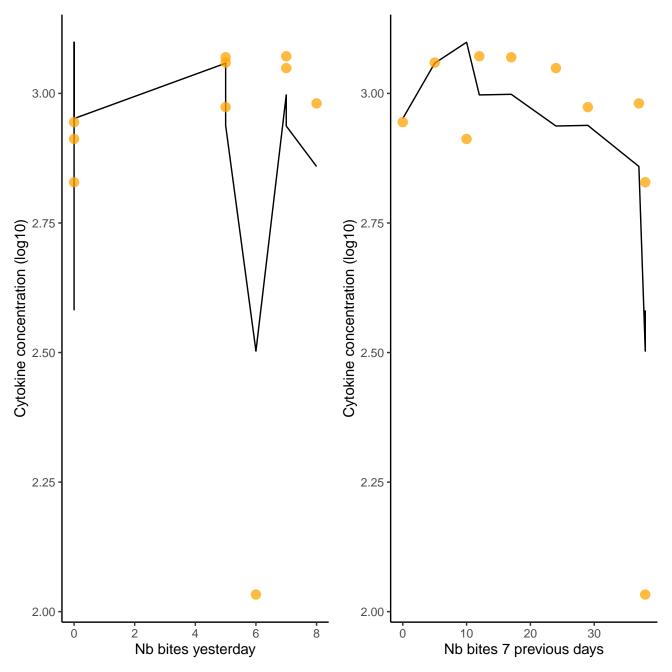


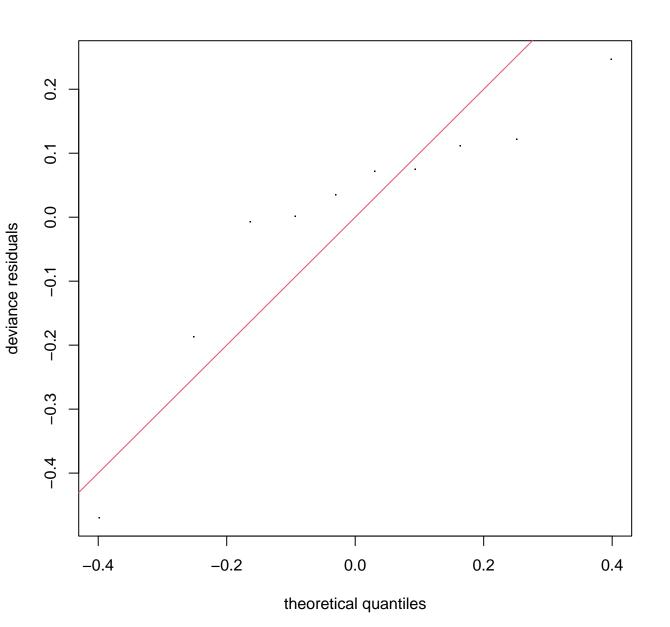
Nb excluded (LOD): 26 Nb remaining: 10



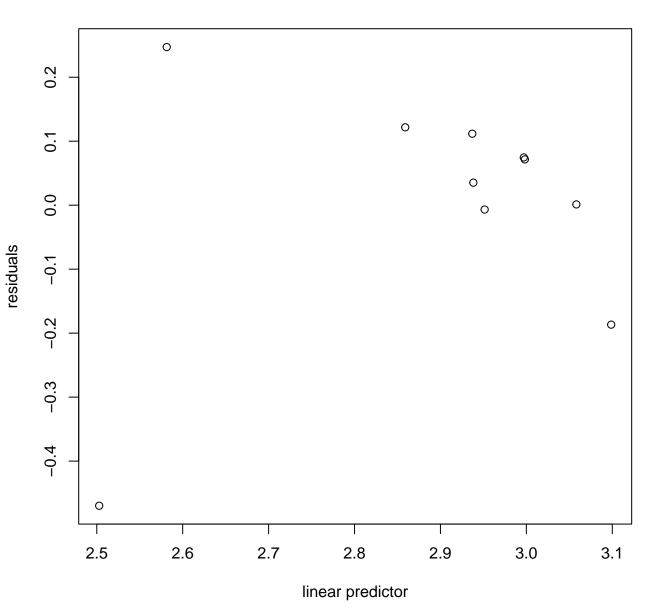




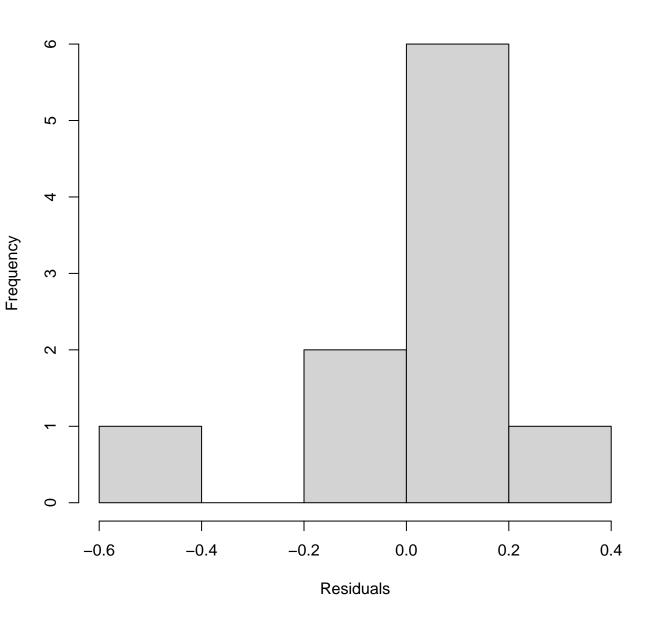




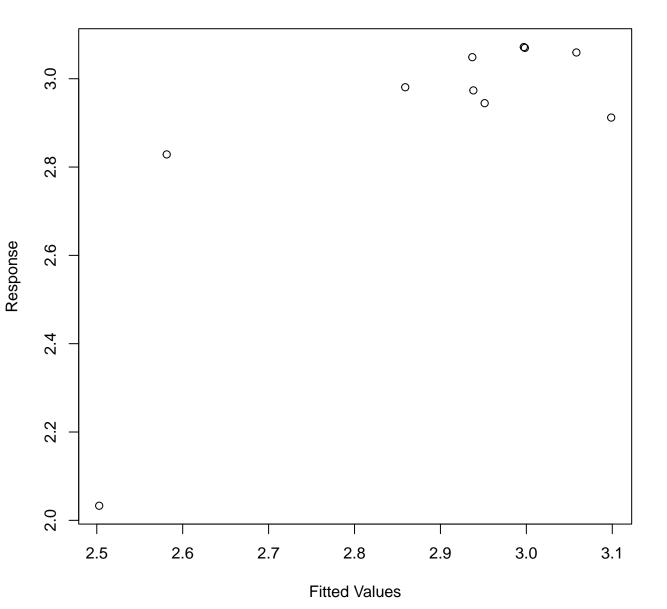
### Resids vs. linear pred.



# **Histogram of residuals**



### Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 13 iterations. Gradient range [-8.278141e-07,2.155729e-07]

(score 0.3420244 & scale 0.05869235). Hessian positive definite, eigenvalue range [2.785524e-07,5.195765].

Model rank = 10 / 10

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

edf k-index p-value k' s(bites\_of\_yesterday) 1.22 0.69 3.000 1.000

s(cumul\_bites\_7\_previous\_days) 3.000 1.000 1.53 0.91 s(ID) 3.000 0.936 NA NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.14	[1.01,	2.75]	1.07	0.88	[0.36, 0.99]
s(cumul_bites_7_previous_days, k	= 4)	1.14	[1.01,	2.75]	1.07	0.88	[0.36, 0.99]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

Estimate Std. Error t value Pr(>|t|)

(Intercept) 2.7959 0.1622 17.24 2.21e-06 \*\*\*

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1 Approximate significance of smooth terms:

edf Ref.df F p-value s(bites\_of\_yesterday) 1 0.166 0.6976 1.0000 s(cumul\_bites\_7\_previous\_days) 1.0000 1 0.432 0.5356 2 1.719 0.0916 . s(ID) 0.9363

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ....... 1

R-sq.(adj) = 0.397 Deviance explained = 59.4% -ML = 0.34202 Scale est. = 0.058692 n = 10

AICc [1] 24.9539



Nb excluded (LOD): 20 Nb remaining: 0

IL.15 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

IL.17



Nb excluded (LOD): 36

Nb remaining: 0

IL.17 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



Nb excluded (LOD): 20 Nb remaining: 0

IL.17 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

IL.1B



Nb excluded (LOD): 36

Nb remaining: 0

IL.1B ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



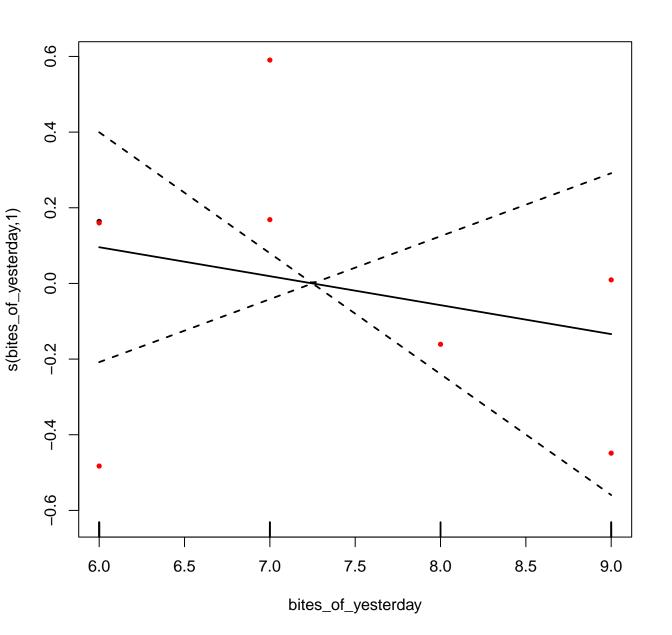
Nb excluded (LOD): 20 Nb remaining: 0

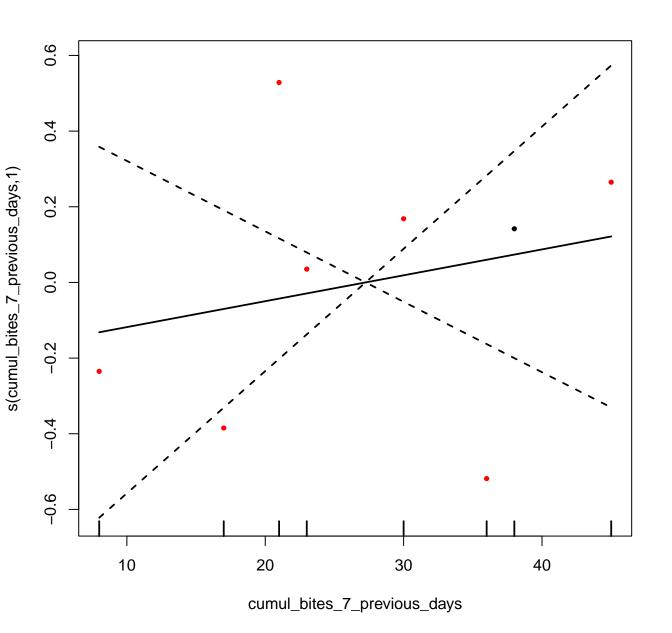
IL.1B ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

IL.2

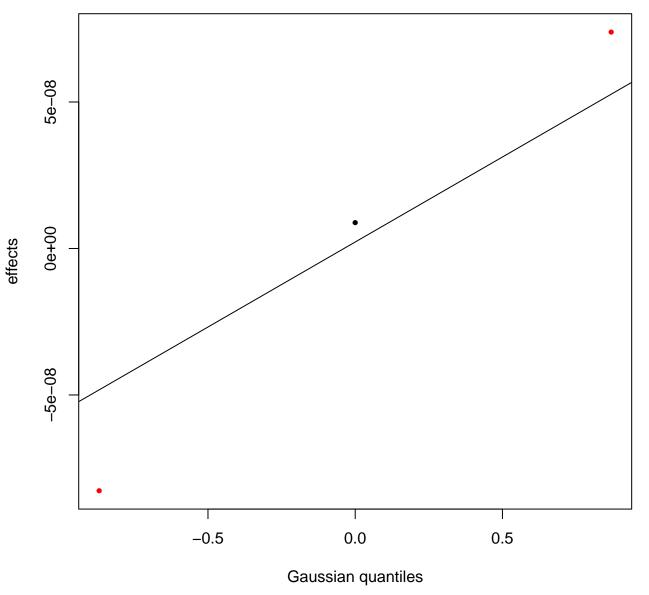


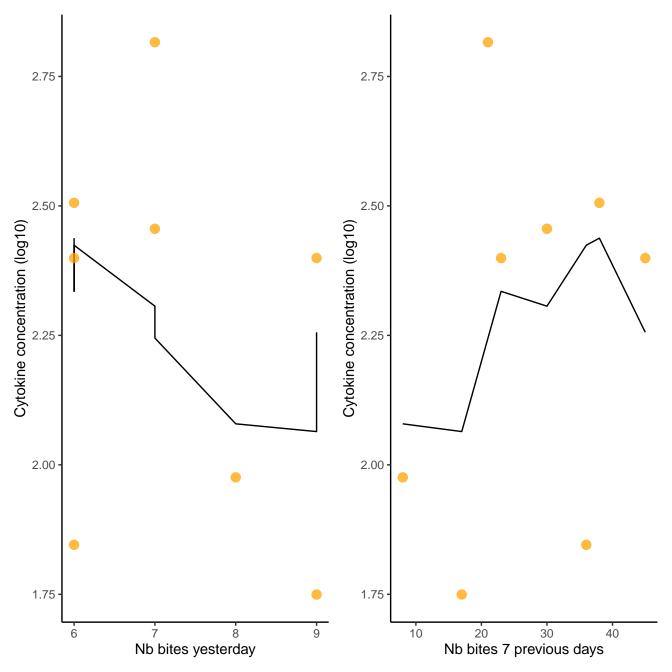
Nb excluded (LOD): 28 Nb remaining: 8

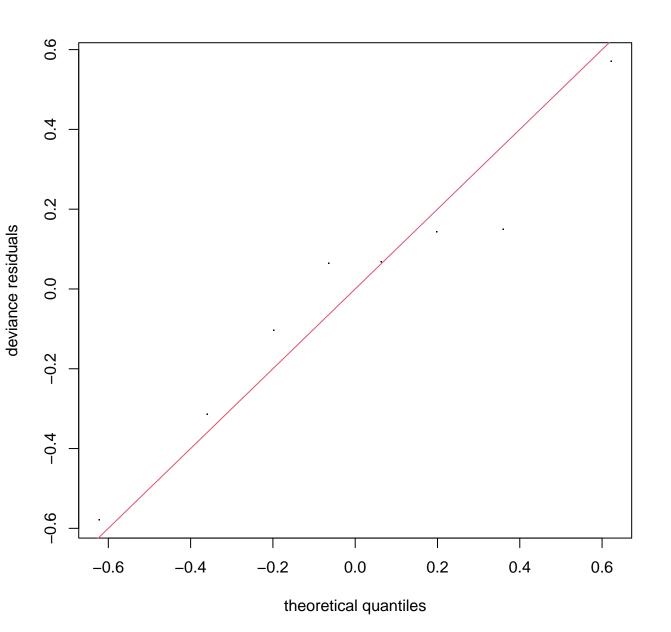




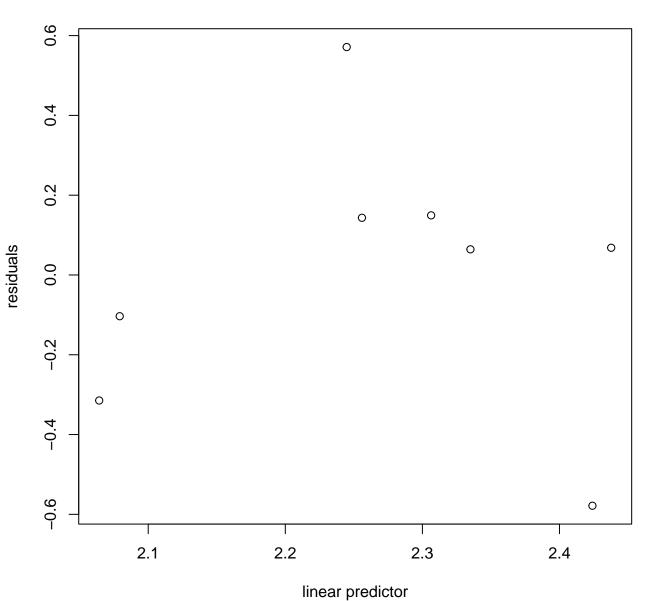




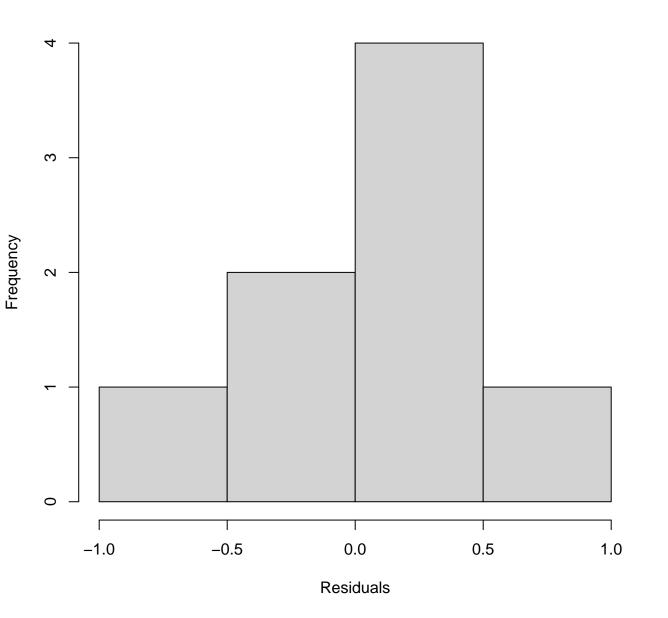




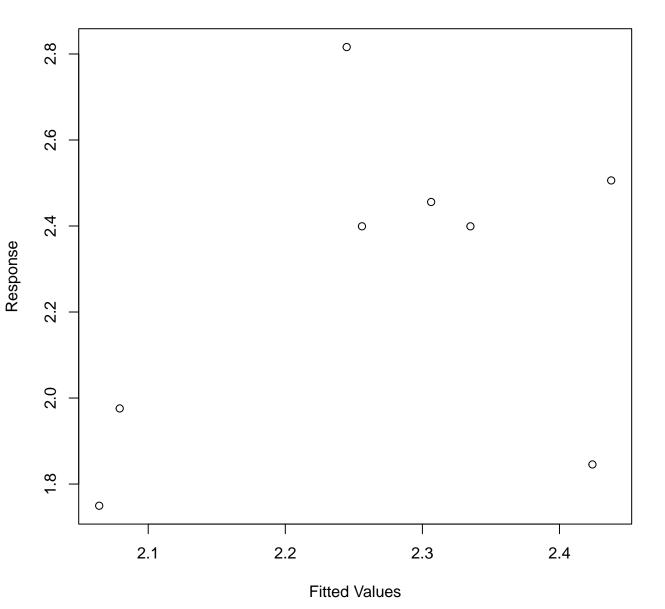
Resids vs. linear pred.



## **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 13 iterations. Gradient range [-1.822611e-06,8.704892e-07]

(score 2.251235 & scale 0.1644637). Hessian positive definite, eigenvalue range [5.181932e-08,3.999999]. Model rank = 10 / 10

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

s(ID)

k'

edf k-index p-value

s(bites\_of\_yesterday)

3.00e+00 1.00e+00

s(cumul\_bites\_7\_previous\_days) 3.00e+00 1.00e+00

1.42 3.00e+00 3.61e-07

NA

NA

1.27

0.59

0.78

## # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95%	CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday,	k = 4)	1.06	[1.00]	5.3	7]	1.03	0.95	[0.19, 1.00]
s(cumul_bites_7_previous_days,	k = 4)	1.06	[1.00]	5.3	7]	1.03	0.95	[0.19, 1.00]

```
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
```

```
Parametric coefficients:
```

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1

```
Estimate Std. Error t value Pr(>|t|)
(Intercept) 2.2684 0.1434 15.82 1.84e-05 ***
```

Family: gaussian

```
Approximate significance of smooth terms:
                                 edf Ref.df
                                              F p-value
s(bites_of_yesterday)
                             1.00e+00 1 0.397 0.556
s(cumul_bites_7_previous_days) 1.00e+00
                                          1 0.289 0.614
```

```
s(ID)
                            3.61e-07
                                         2 0.000 0.281
R-sq.(adj) = -0.2 Deviance explained = 14.3%
-ML = 2.2512 Scale est. = 0.16446 n = 8
```

AICc [1] 25.83583



Nb excluded (LOD): 20 Nb remaining: 0

IL.2 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

IL.4



Nb remaining: 0

Nb excluded (LOD): 36

IL.4 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



IL.4 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

IL.5



Nb excluded (LOD): 36

Nb remaining: 0

IL.5 ERROR : Pa	s assez de données	(non-NA) pour	faire quoi	que ce soit	d'utile



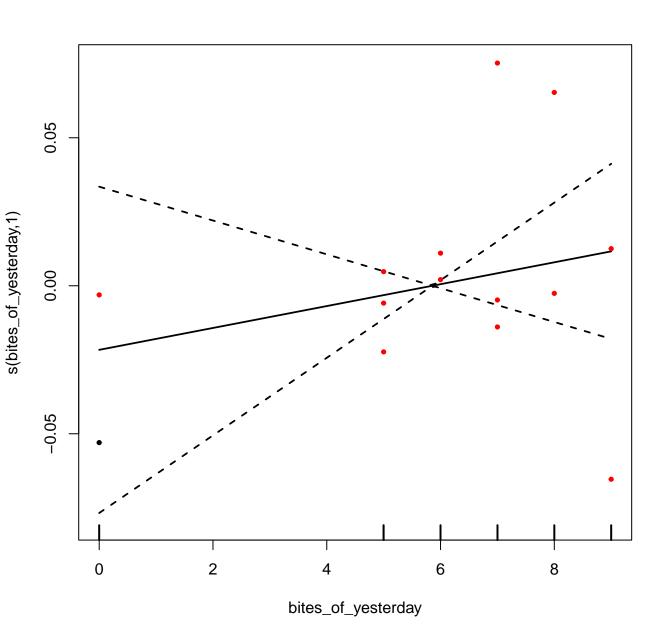
IL.5 ERROR : Pa	s assez de données	(non-NA) pour	faire quoi	que ce soit	d'utile

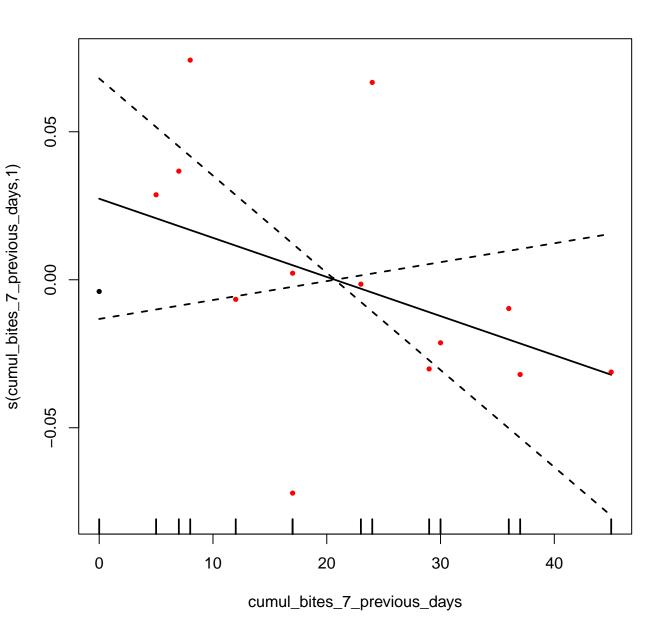
IL.6



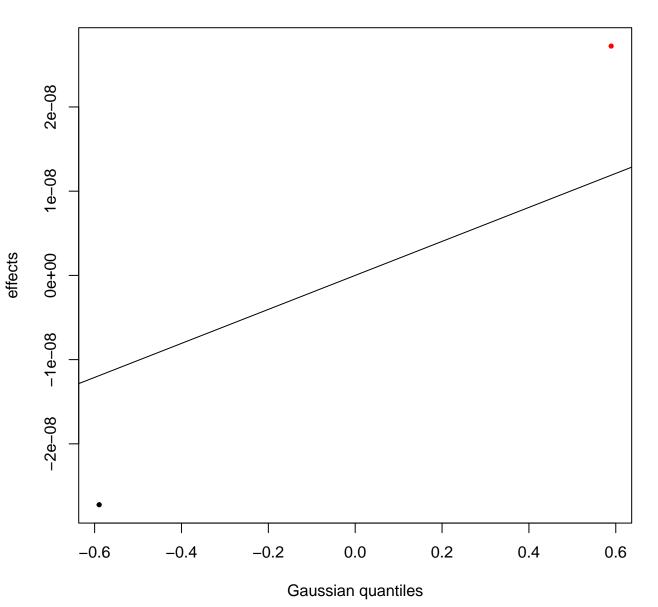
Nb excluded (LOD): 22

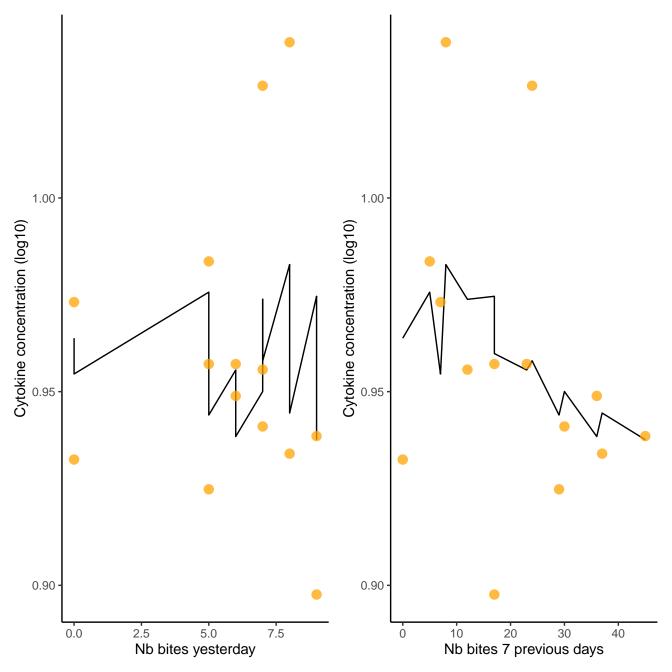
Nb remaining: 14

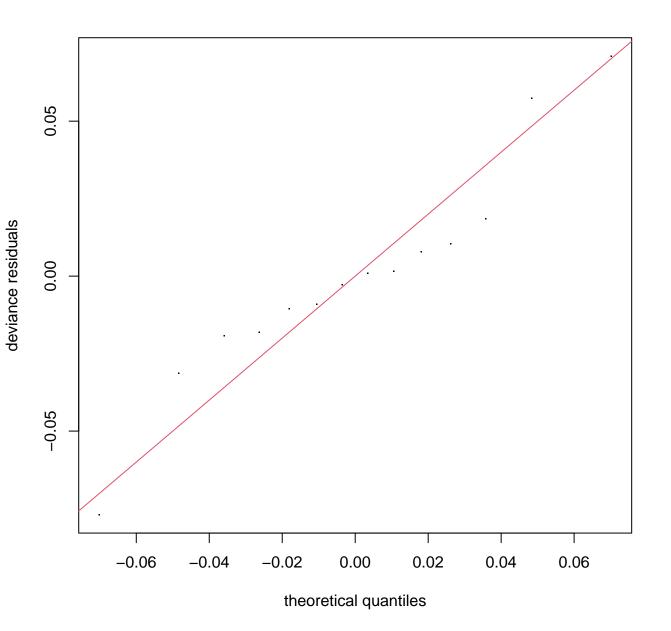




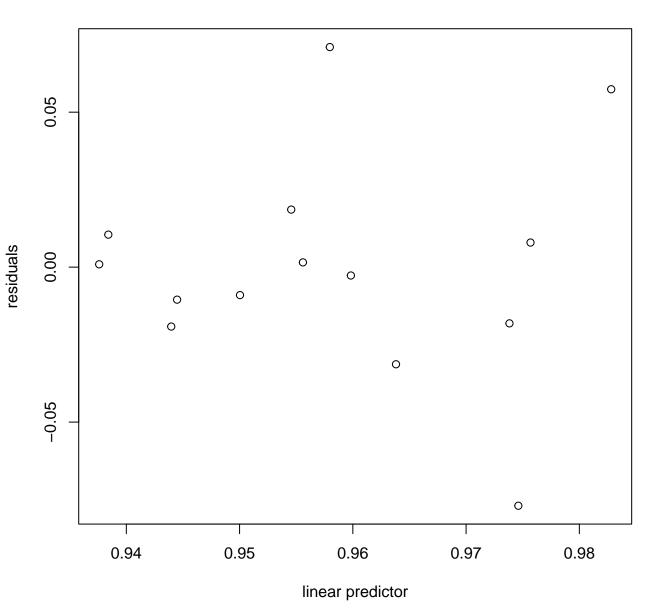




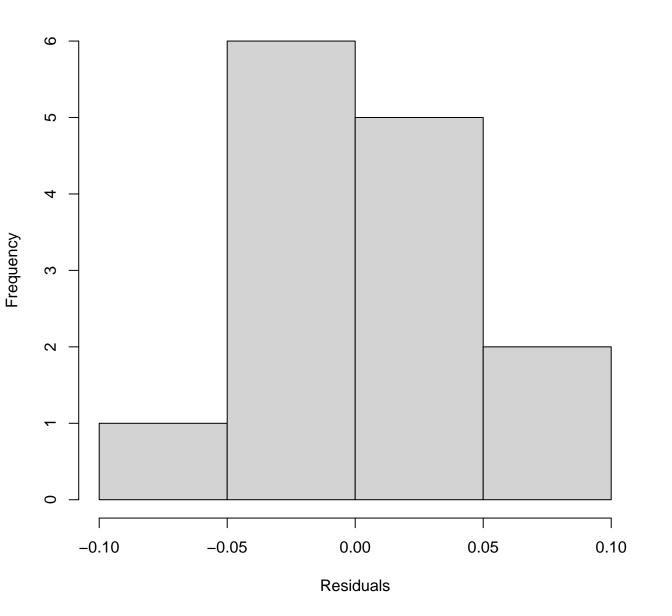




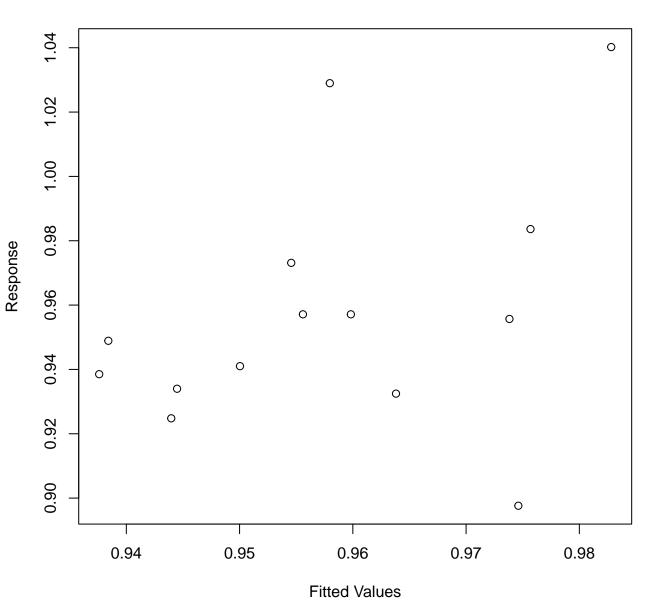
## Resids vs. linear pred.



## **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 13 iterations.

Gradient range [-6.049137e-06,7.161568e-07] (score -27.27069 & scale 0.001514714).

Hessian positive definite, eigenvalue range [1.077795e-07,6.999999]. Model rank = 9 / 9

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

edf k-index p-value k'

3.00e+00 1.00e+00 0.88 0.20

s(bites\_of\_yesterday) s(cumul\_bites\_7\_previous\_days) 3.00e+00 1.00e+00 1.03 0.43

s(ID) 2.00e+00 6.46e-06 NA NA

## # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95%	CI	Increased	SE	Tolerance	Tolerance	95%	CI
s(bites_of_yesterday, k	= 4)	1.15	[1.01,	3.1	4]	1.	07	0.87	[0.32,	0.9	99]
s(cumul_bites_7_previous_days, k	= 4)	1.15	[1.01,	3.1	4]	1.	07	0.87	[0.32,	0.9	99]

```
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
```

```
Parametric coefficients:
            Estimate Std. Error t value Pr(>|t|)
```

(Intercept) 0.9581 0.0104 92.11 <2e-16 \*\*\*

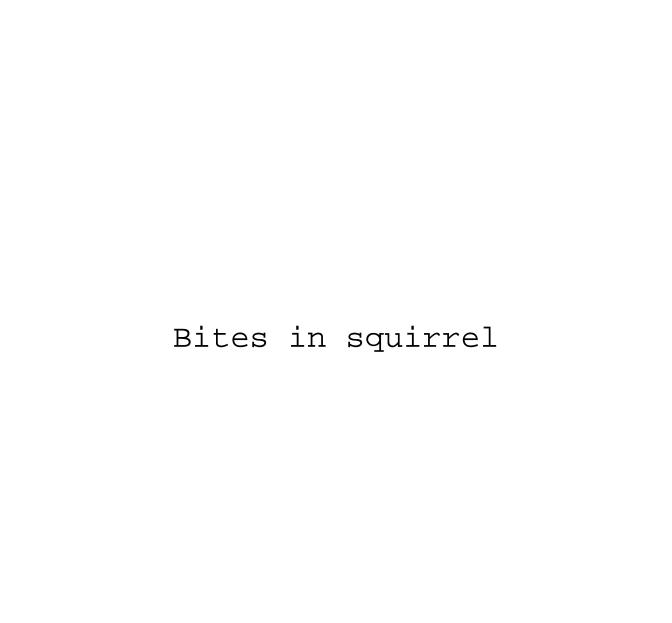
Family: gaussian

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 0.1 ... 1
Approximate significance of smooth terms:
```

edf Ref.df F p-value s(bites\_of\_yesterday) 1.000e+00 1 0.617 0.449 1 1.817 0.205 s(cumul\_bites\_7\_previous\_days) 1.000e+00 s(ID) 6.463e-06 1 0.000 0.698

```
R-sq.(adj) = -0.0143 Deviance explained = 14.2%
-ML = -27.271 Scale est. = 0.0015147 n = 14
```

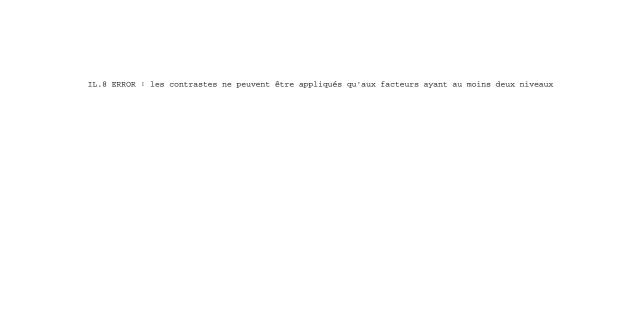
AICc [1] -42.09688



IL.6 ERROR : 1	Pas assez de donnée	s (non-NA) pour	faire quoi que	ce soit d'utile	

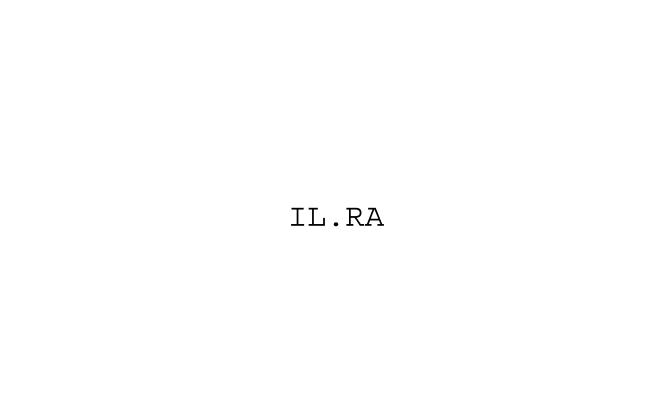
IL.8







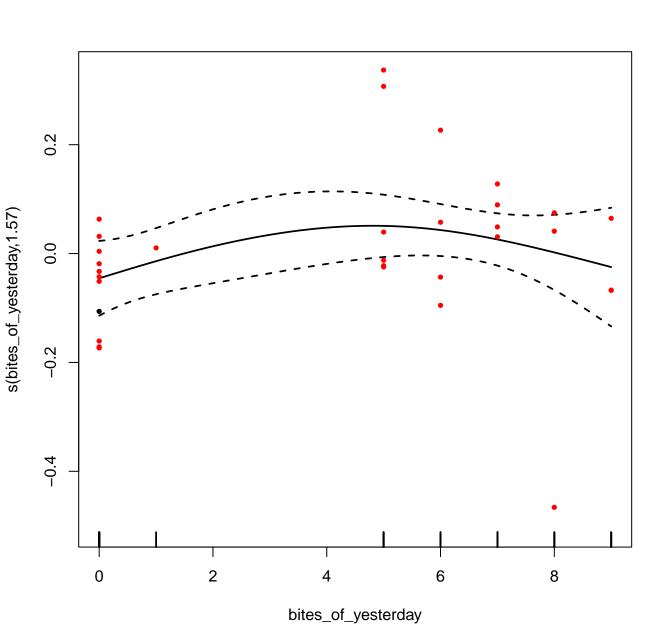
IL.8 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

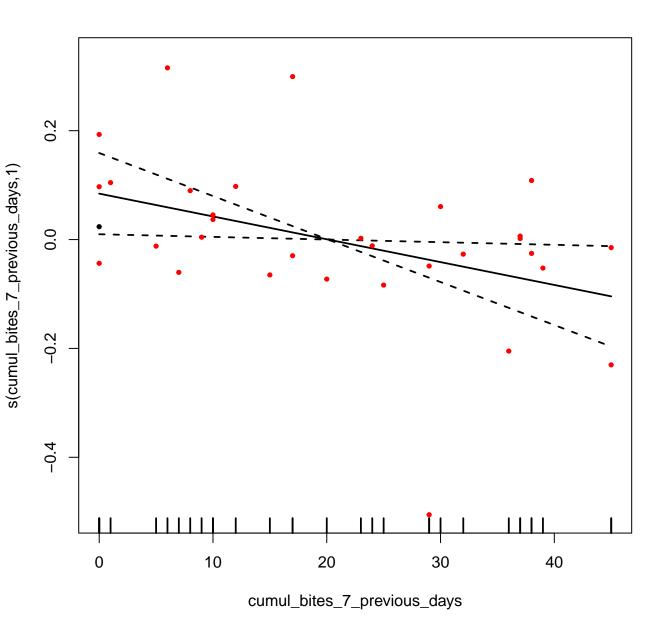




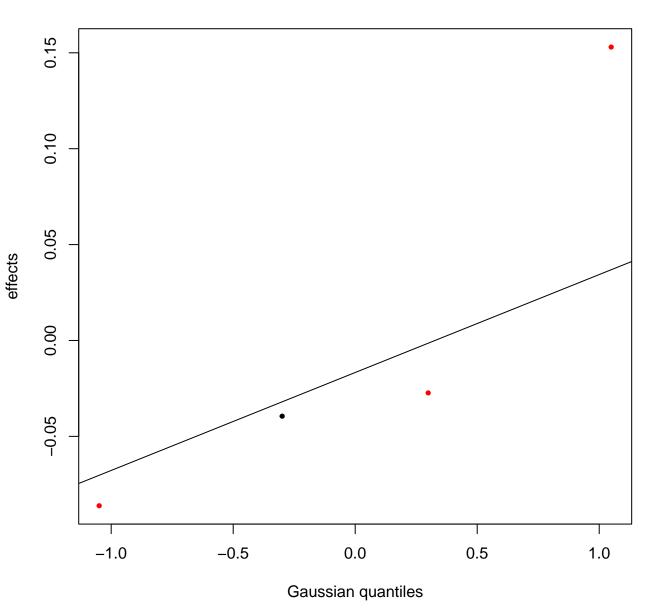
Nb remaining: 32

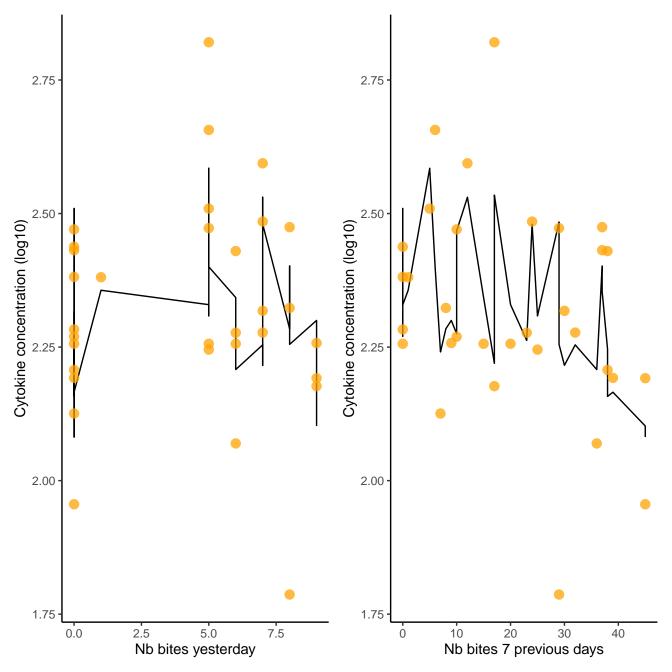
Nb excluded (LOD): 4

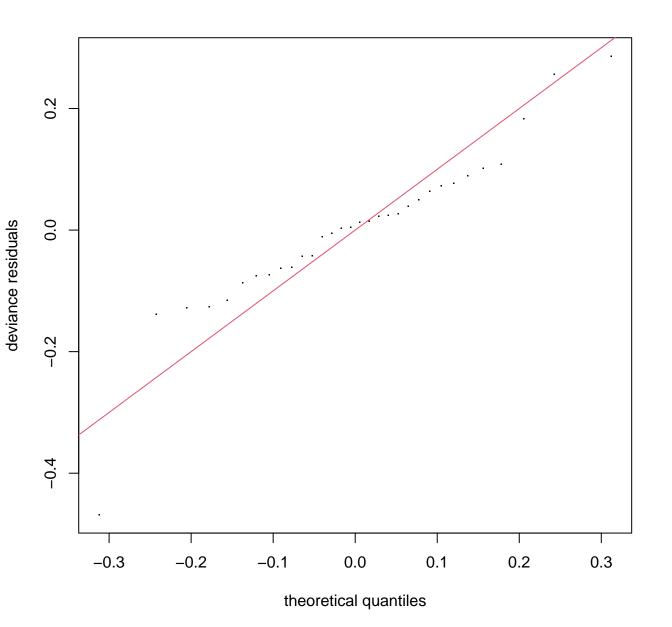




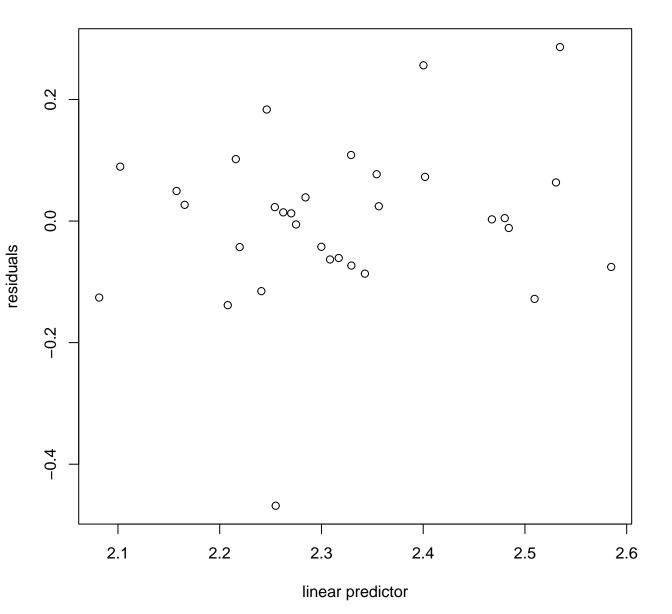
s(ID,2.38)



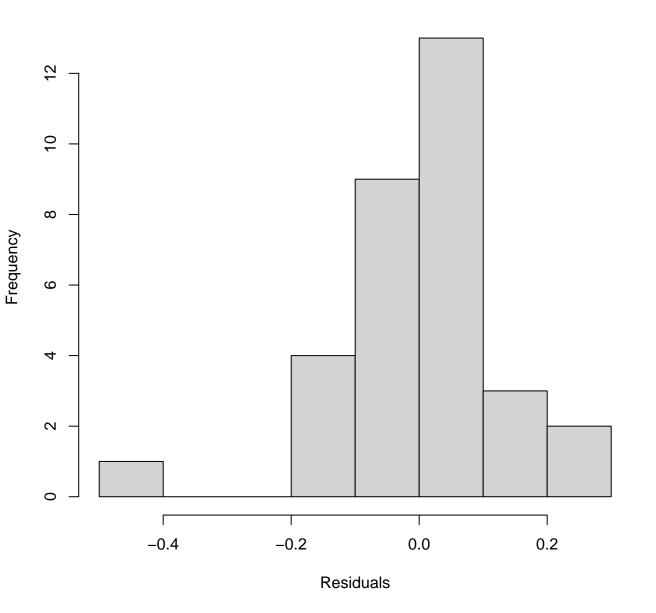




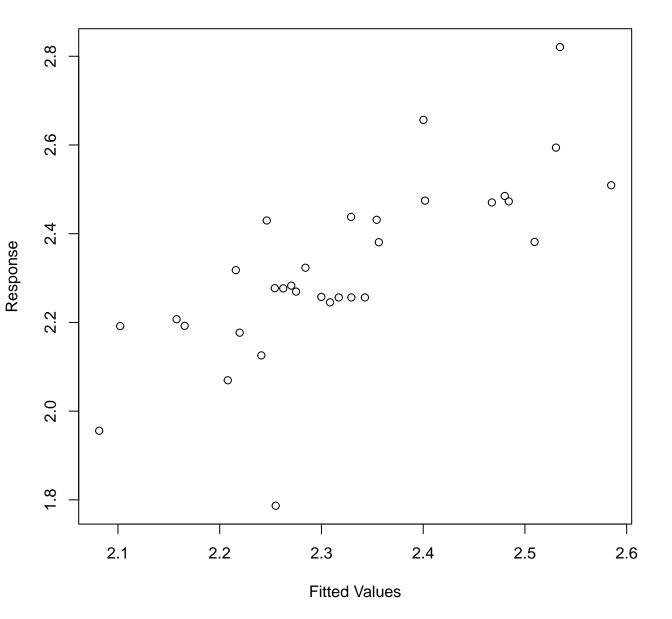
### Resids vs. linear pred.



# **Histogram of residuals**



### Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 12 iterations. Gradient range [-9.643338e-06,6.772071e-07]

(score -12.81548 & scale 0.02099282). Hessian positive definite, eigenvalue range [9.643188e-06,16.19811]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(bites\_of\_yesterday) 1.06 0.60 3.00 1.57 s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.27 0.93 s(ID) 4.00 2.38 NA NA # Check for Multicollinearity

Low Correlation

Term VIF VIF 95% CI Increased SE Tolerance Tolerance 95% CI s(cumul\_bites\_7\_previous\_days, k = 4) 2.68 [1.81, 4.48] 1.64 0.37 [0.22, 0.55]

Moderate Correlation

Term VIF VIF 95% CI Increased SE Tolerance Tolerance 95% CI s(bites\_of\_yesterday, k = 4) 7.75 [4.70, 13.32] 2.78 0.13 [0.08, 0.21]

```
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
```

edf Ref.df

1.569 1.853 2.070 0.21776

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ....... 1

2.377 3.000 5.536 0.00129 \*\*

F p-value

Approximate significance of smooth terms:

R-sq.(adj) = 0.471 Deviance explained = 55.5% -ML = -12.815 Scale est. = 0.020993 n = 32

Family: gaussian

s(bites\_of\_yesterday)

s(ID)

```
Parametric coefficients:
           Estimate Std. Error t value Pr(>|t|)
(Intercept) 2.31749 0.05862 39.53 <2e-16 ***
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 0.1 ... 1
```

s(cumul\_bites\_7\_previous\_days) 1.000 1.000 5.118 0.03227 \*

AICc [1] -18.1934



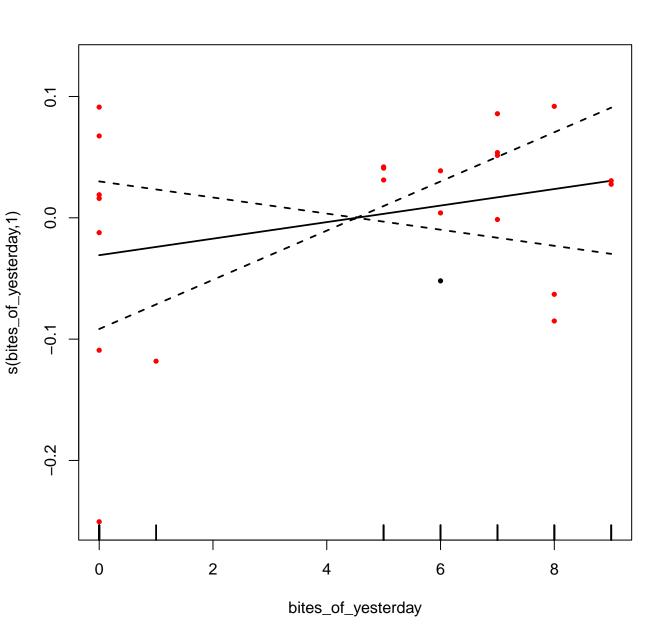
Nb excluded (LOD): 20 Nb remaining: 0

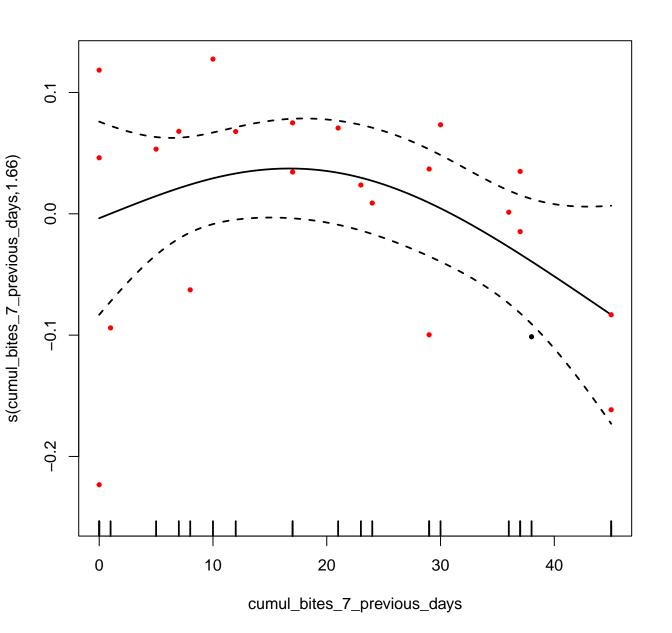
IL.RA ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

IP.10

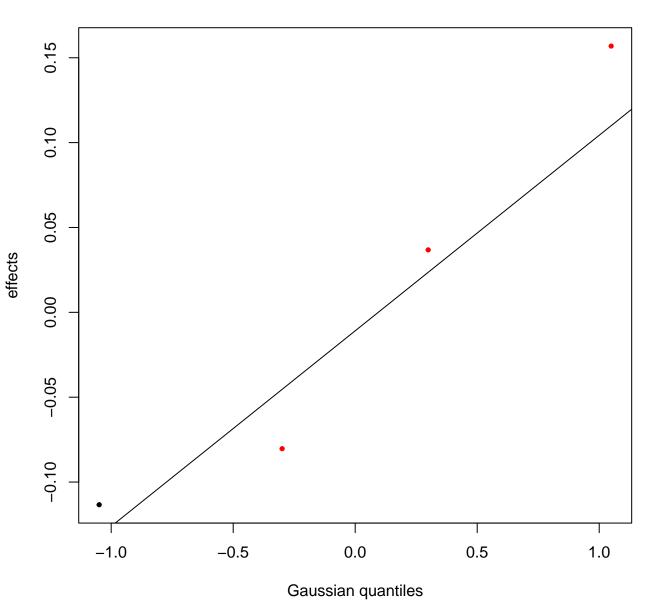


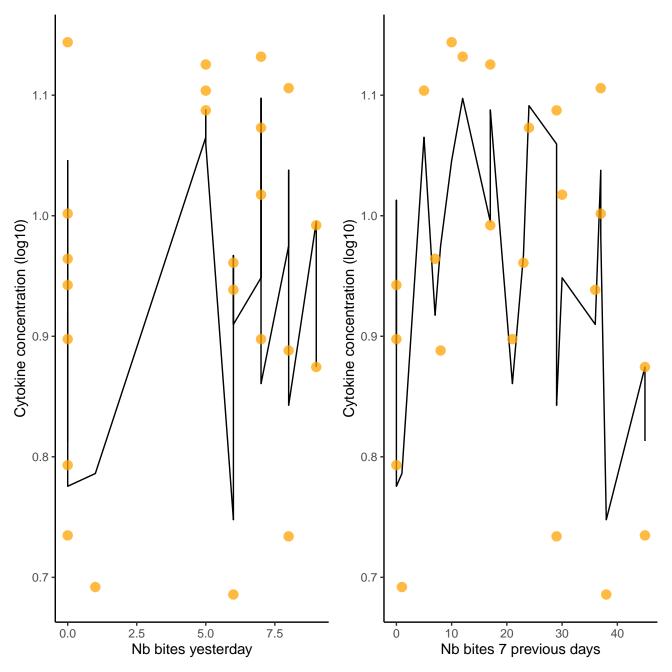
Nb excluded (LOD): 13 Nb remaining: 23

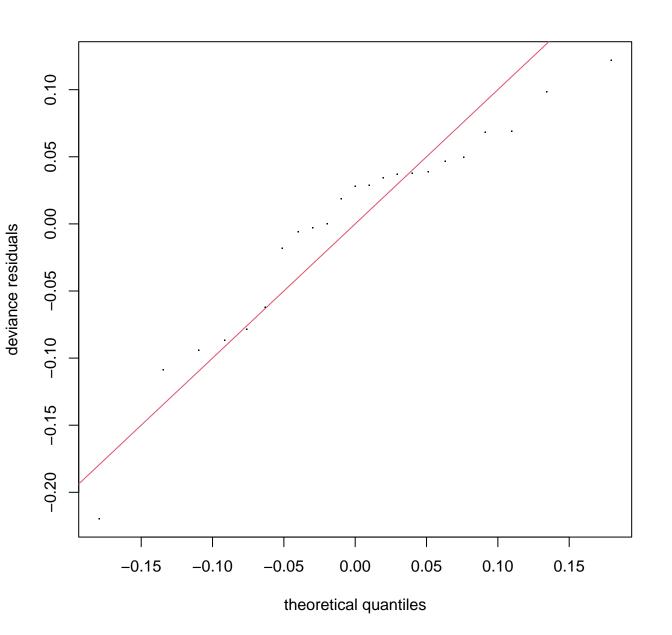




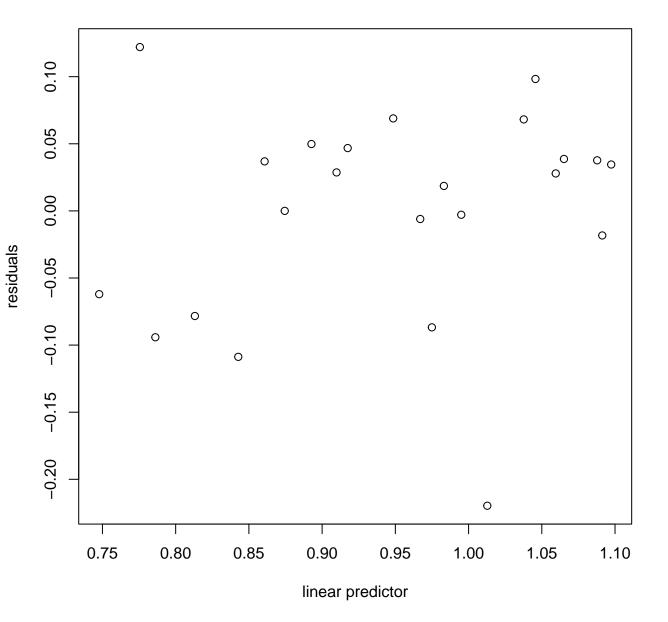




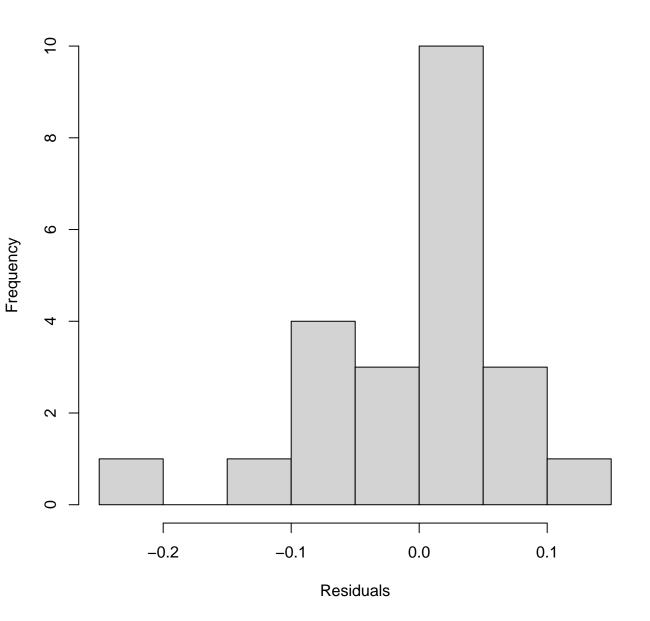




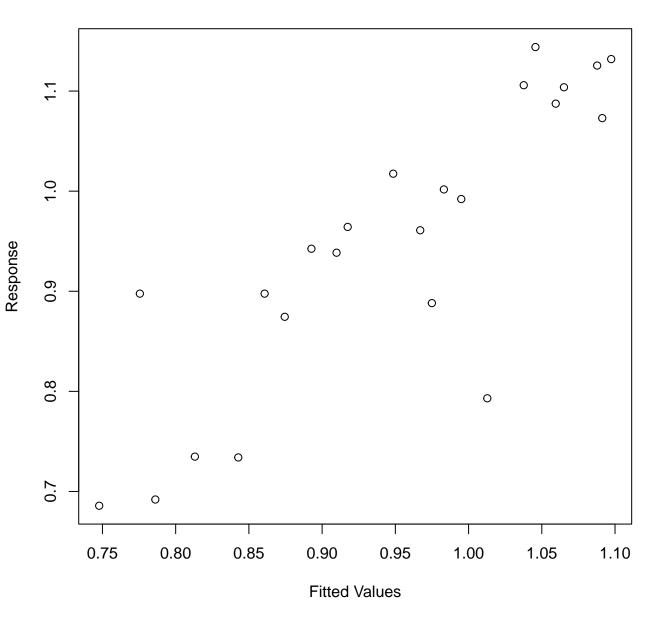
### Resids vs. linear pred.



# **Histogram of residuals**



#### Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 11 iterations. Gradient range [-5.207316e-06,4.428552e-07]

(score -18.18234 & scale 0.007897933).

Hessian positive definite, eigenvalue range [5.207272e-06,11.81994]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(bites\_of\_yesterday) 1.26 0.84 3.00 1.00 s(cumul\_bites\_7\_previous\_days) 3.00 1.66 1.53 0.99 s(ID) 4.00 2.51 NA NA

#### # Check for Multicollinearity

#### Low Correlation

	Term	VIF	VIF	95% (	CI	Increased	SE	Tolerance	Tolerance	95%	CI
s(bites_of_yesterday,	k = 4)	1.48	[1.14,	2.64	4]	1.	21	0.68	[0.38]	0.8	88]
s(cumul_bites_7_previous_days,	k = 4)	1.48	[1.14,	2.64	4]	1.	21	0.68	[0.38]	0.8	88]

Estimate Std. Error t value Pr(>|t|)
(Intercept) 0.89035 0.06511 13.68 1.53e-10 \*\*\*
---

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ....\*... 0.05 ...... 0.1 ...... 1

Approximate significance of smooth terms:

edf Ref.df F p-value s(bites\_of\_yesterday) 1.000 1.000 1.027 0.325105 s(cumul\_bites\_7\_previous\_days) 1.661 2.037 2.149 0.152398 s(ID) 2.512 3.000 9.061 0.000322 \*\*\*

R-sq.(adj) = 0.624 Deviance explained = 71.2% -ML = -18.182 Scale est. = 0.0078979 n = 23

AICc [1] -27.41519



Nb excluded (LOD): 20 Nb remaining: 0

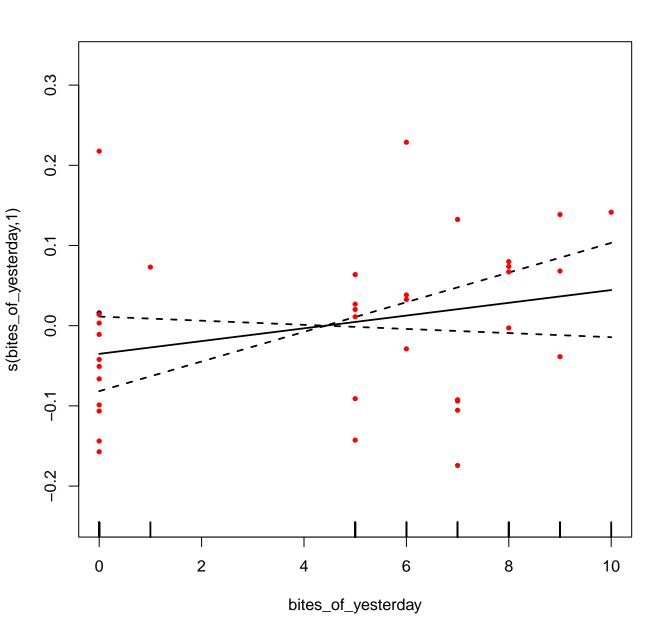
IP.10 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

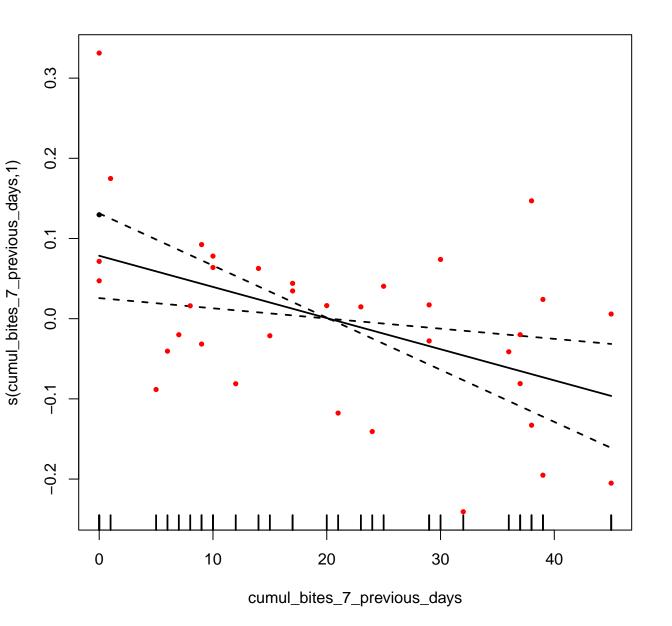
MCP.1



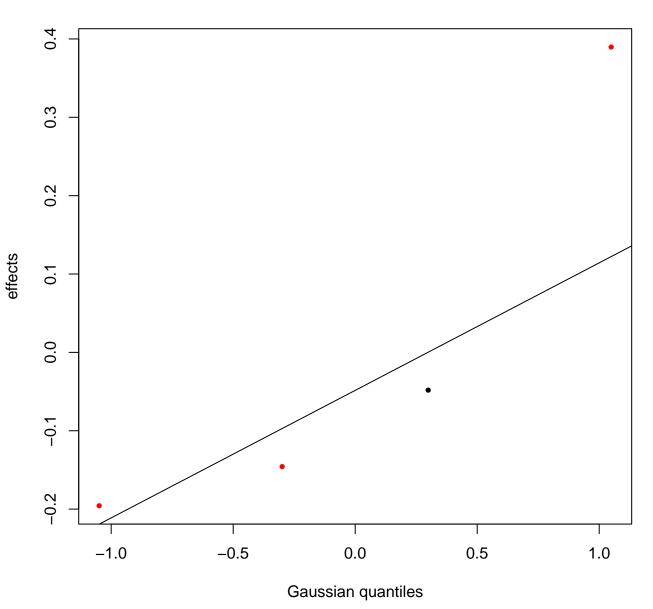
Nb excluded (LOD): 0

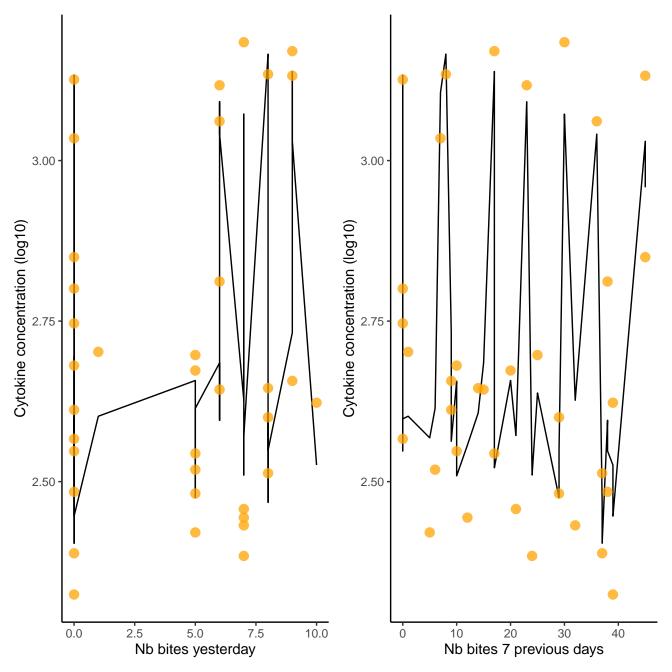
Nb remaining: 36

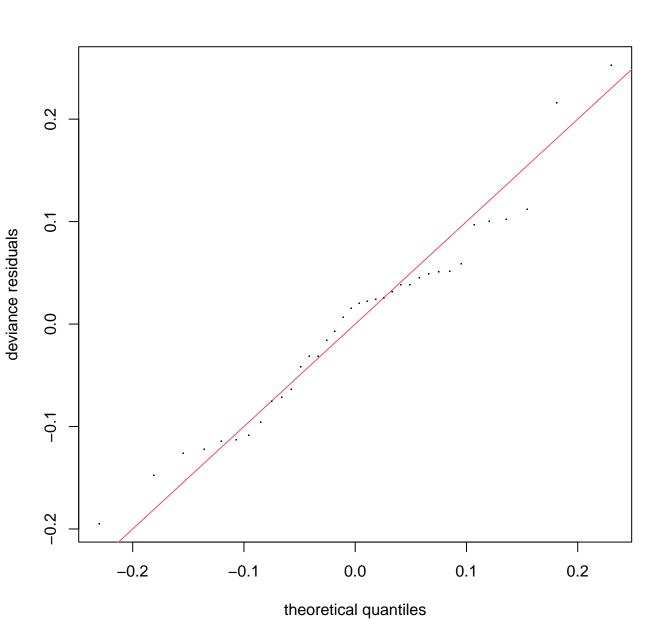




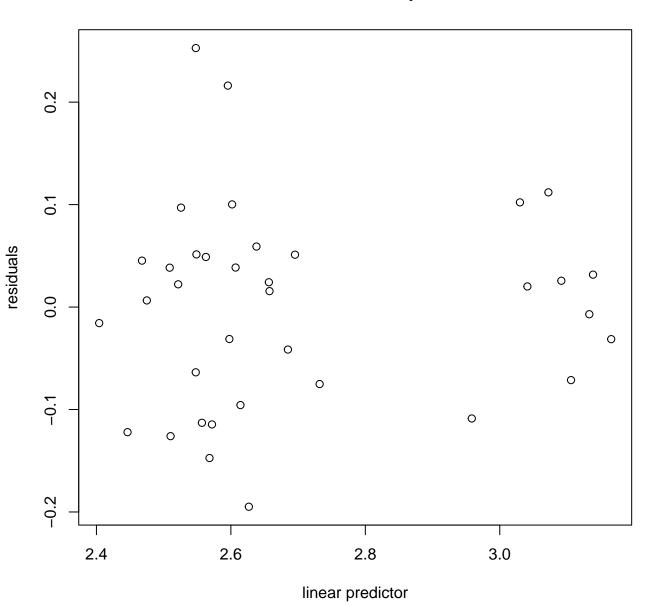
s(ID,2.94)



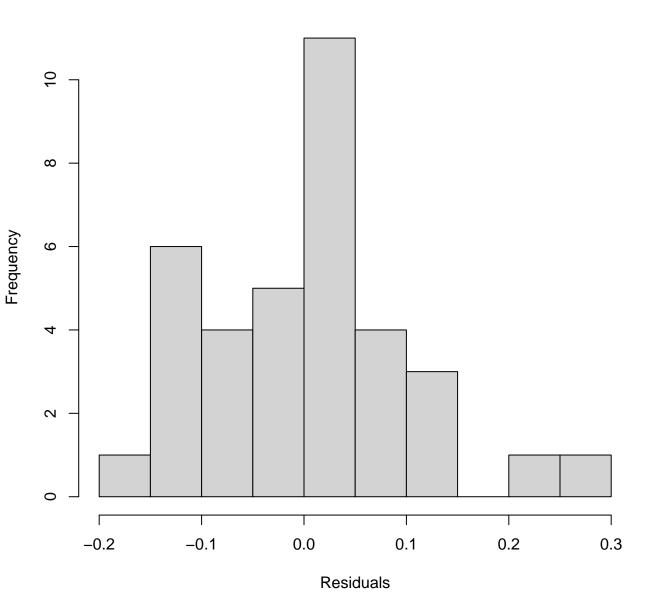




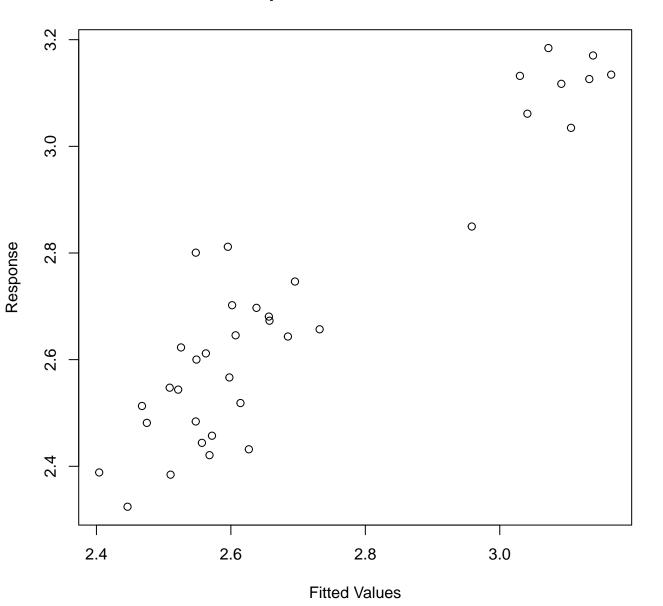
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton full convergence after 11 iterations.

Gradient range [-8.925834e-06,4.157709e-06]

(score -23.5931 & scale 0.01093505).

Hessian positive definite, eigenvalue range [5.947848e-06,18.2352]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(bites\_of\_yesterday) 3.00 1.00 1.12 0.70

s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.34 0.99

s(ID) 4.00 2.94 NA NA

### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
            Estimate Std. Error t value Pr(>|t|)
```

(Intercept) 2.7002 0.1219 22.16 <2e-16 \*\*\* Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1 Approximate significance of smooth terms:

edf Ref.df F p-value 1.000 1 2.283 0.14123 s(bites\_of\_yesterday) s(cumul\_bites\_7\_previous\_days) 1.000 1 8.834 0.00578 \*\* 2.938 3 58.486 < 2e-16 \*\*\* s(ID)

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ....... 1 R-sq.(adj) = 0.837 Deviance explained = 86%

-ML = -23.593 Scale est. = 0.010935 n = 36

AICc [1] -48.92649



Nb excluded (LOD): 19 Nb remaining: 1

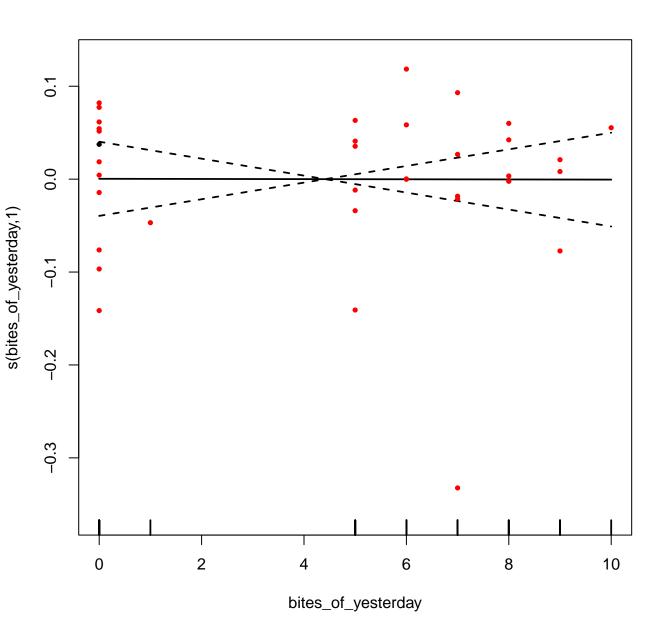
MCP.1 ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

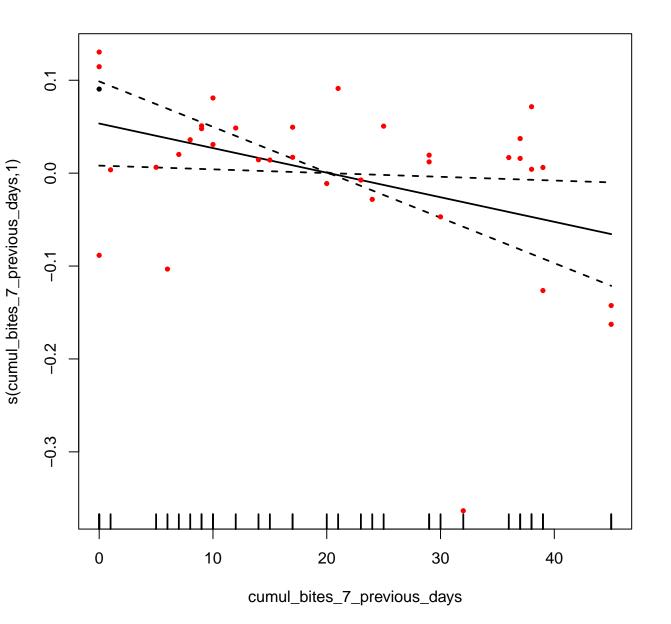




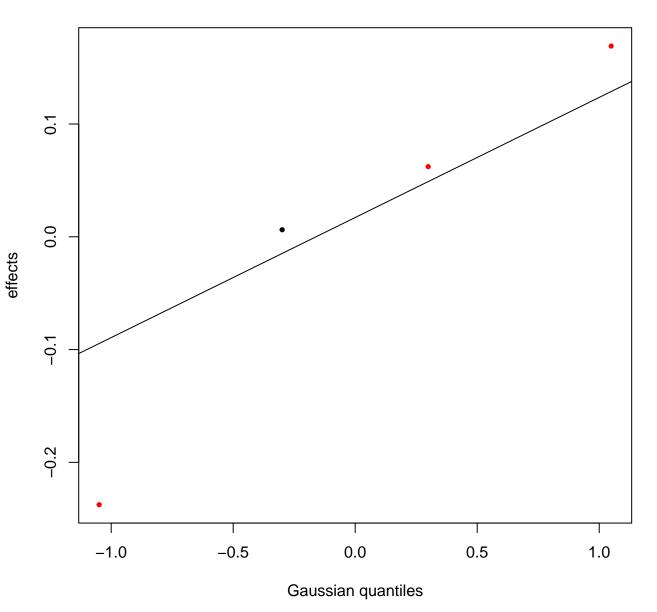
Nb excluded (LOD): 0

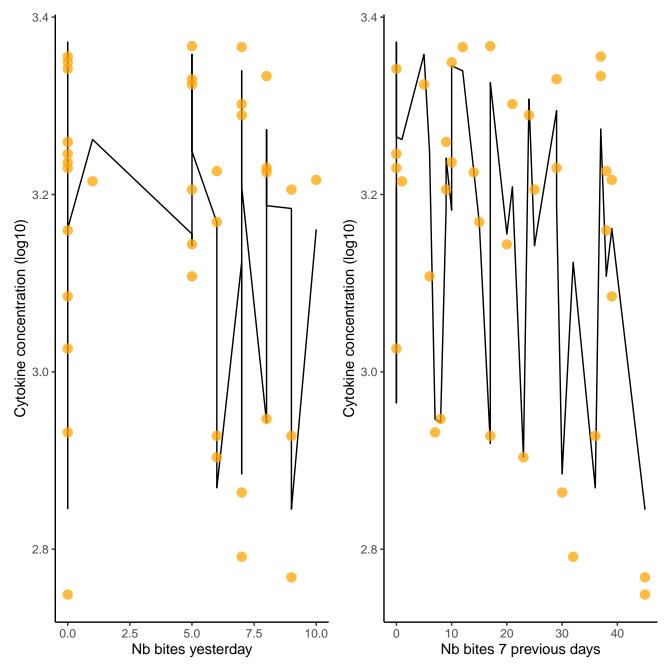
Nb remaining: 36

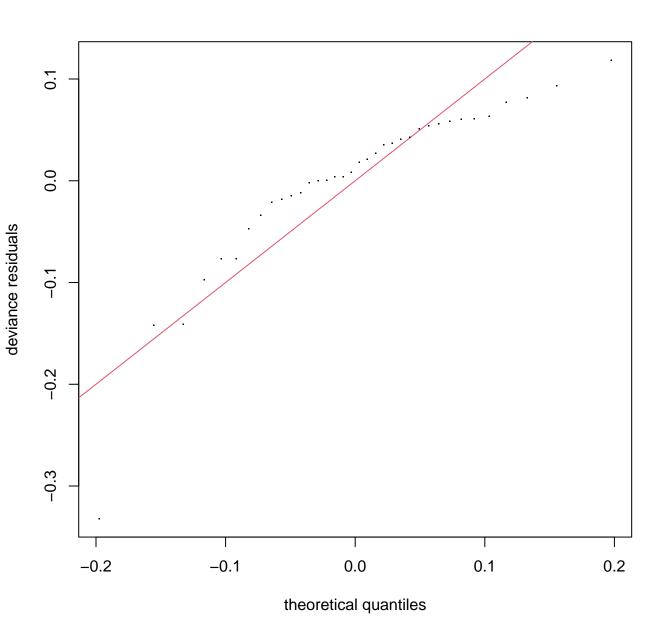




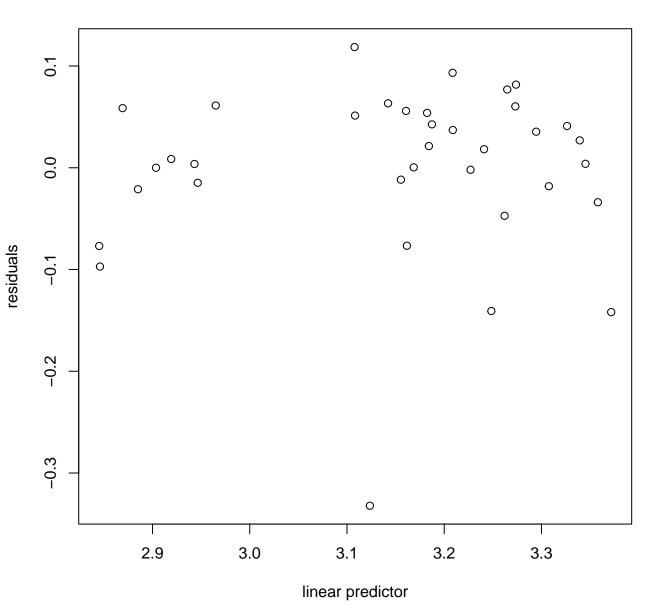




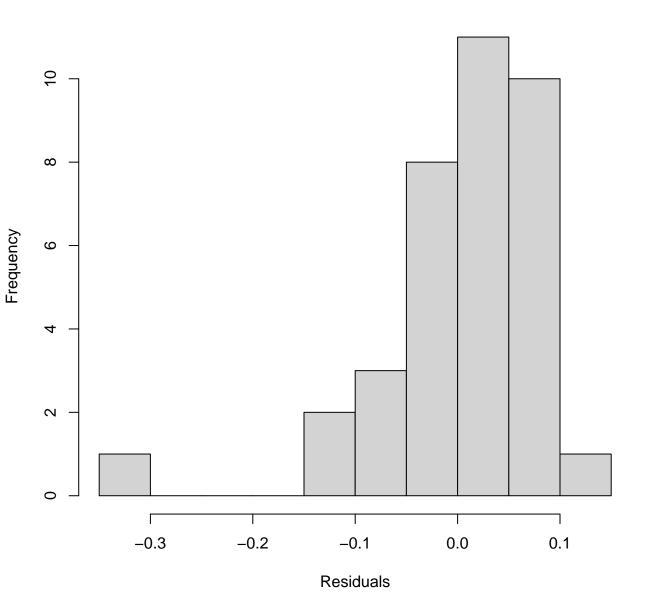




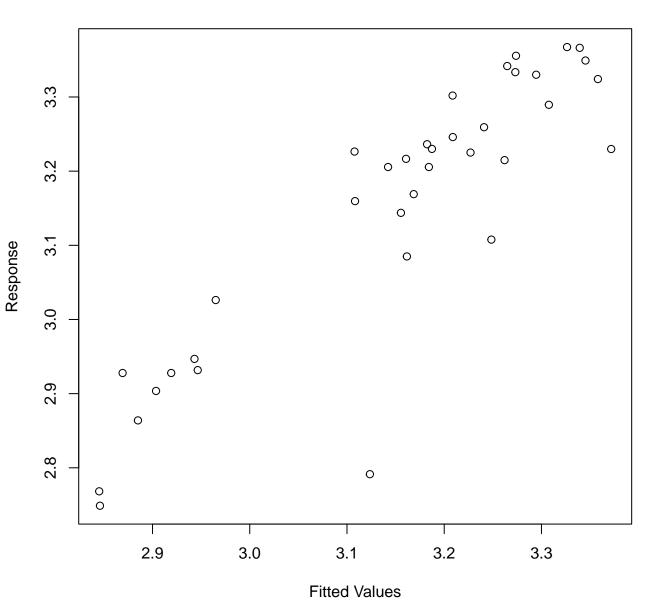
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 11 iterations. Gradient range [-1.138384e-05,1.971193e-06]

(score -30.17698 & scale 0.008057609). Hessian positive definite, eigenvalue range [8.925835e-06,18.22751].

Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(bites\_of\_yesterday) 3.00 1.00 0.99 0.36 s(cumul\_bites\_7\_previous\_days) 3.00 1.00 0.24 0.95 s(ID) 4.00 2.89 NA NA

### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

```
Estimate Std. Error t value Pr(>|t|)
(Intercept) 3.14878 0.07984 39.44 <2e-16 ***
```

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1

-ML = -30.177 Scale est. = 0.0080576 n = 36

```
Approximate significance of smooth terms:
                               edf Ref.df
                                             F p-value
s(bites_of_yesterday)
                             1.000 1 0.000 0.9848
s(cumul_bites_7_previous_days) 1.000
                                       1 5.562 0.0251 *
s(ID)
```

2.894 3 33.618 <2e-16 \*\*\*

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
R-sq.(adj) = 0.766 Deviance explained = 79.9%
```

AICc [1] -59.89258



Nb excluded (LOD): 18 Nb remaining: 2

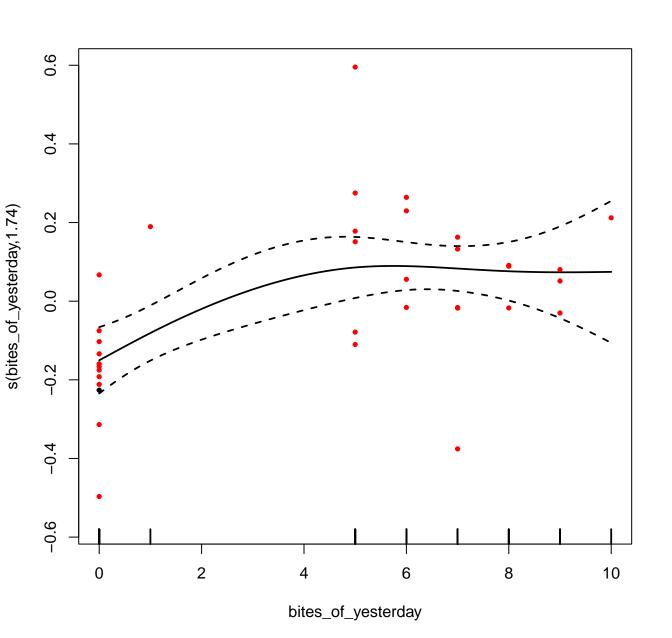
MDC ERROR : Un terme a moins de combinaisons de covariables uniques que le degré de liberté maximum spécifié

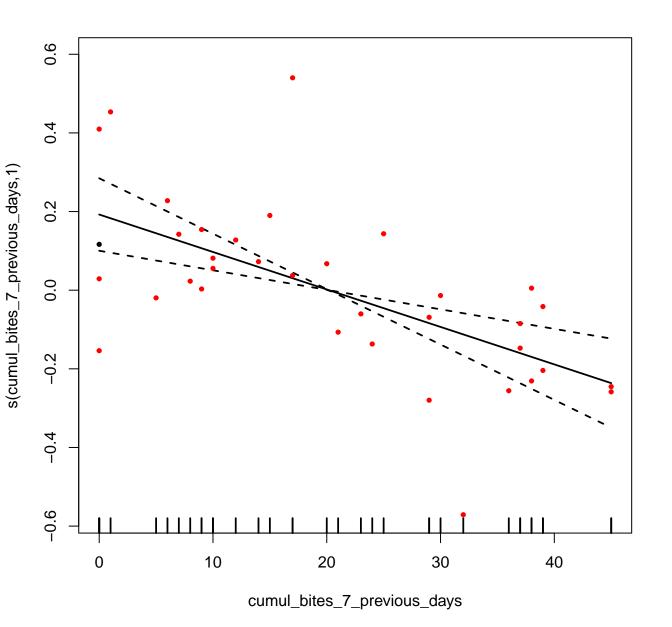




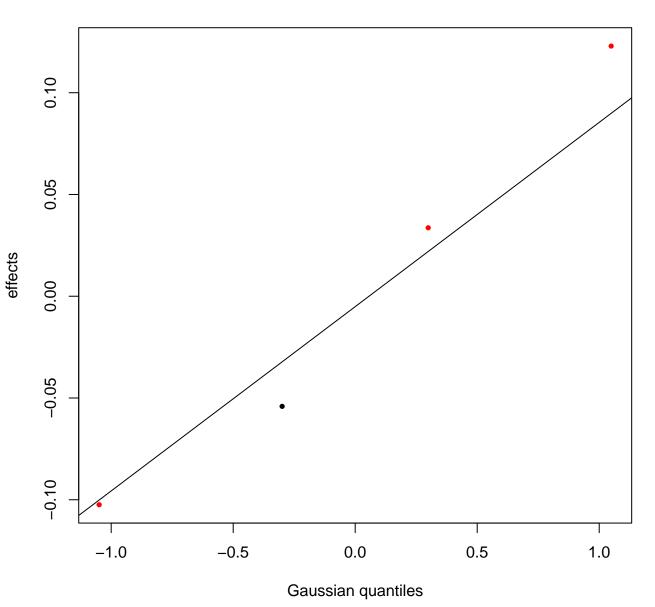
Nb excluded (LOD): 0

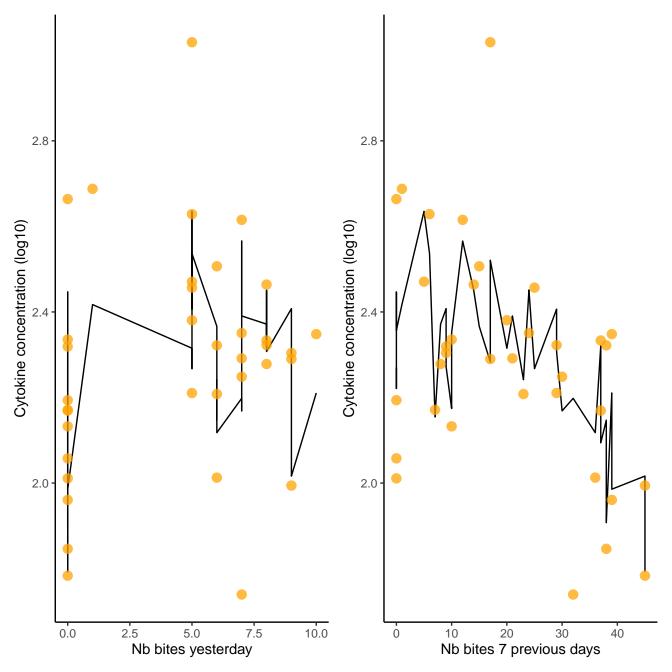
Nb remaining: 36

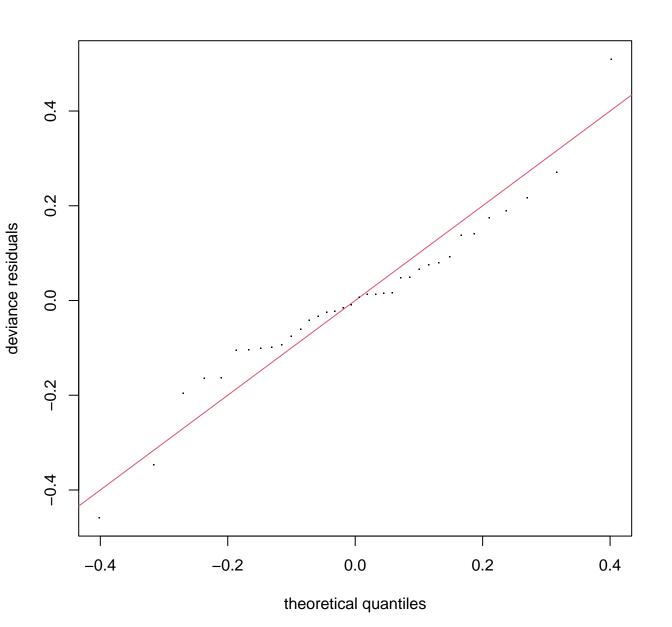




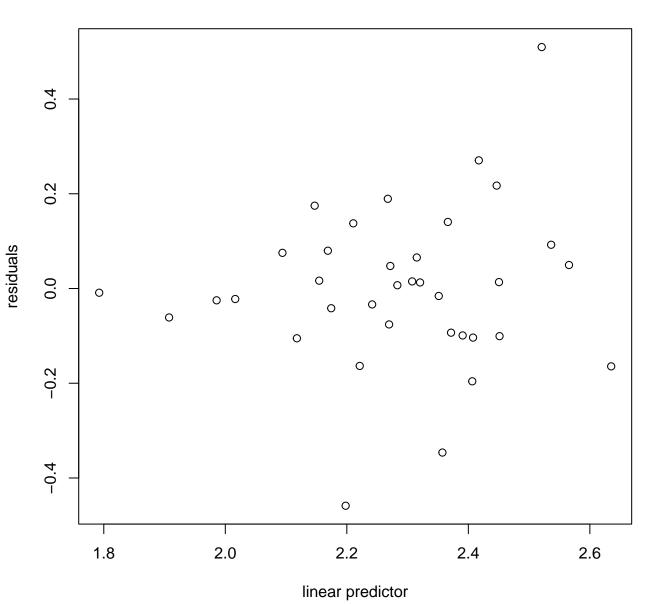




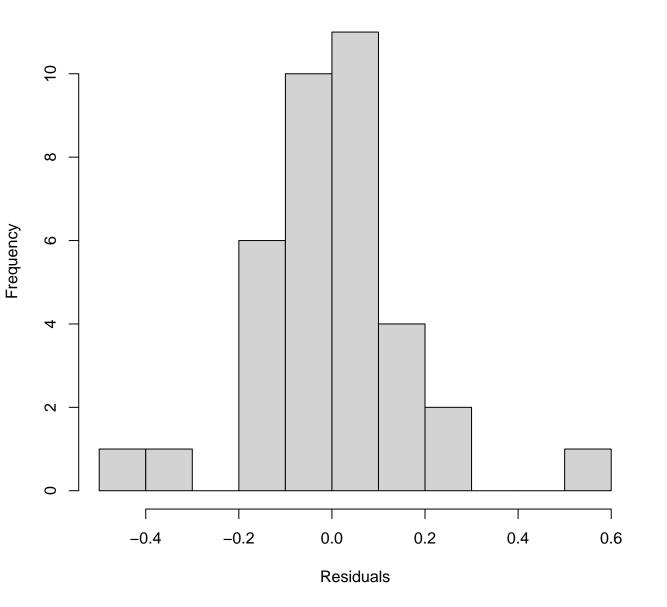




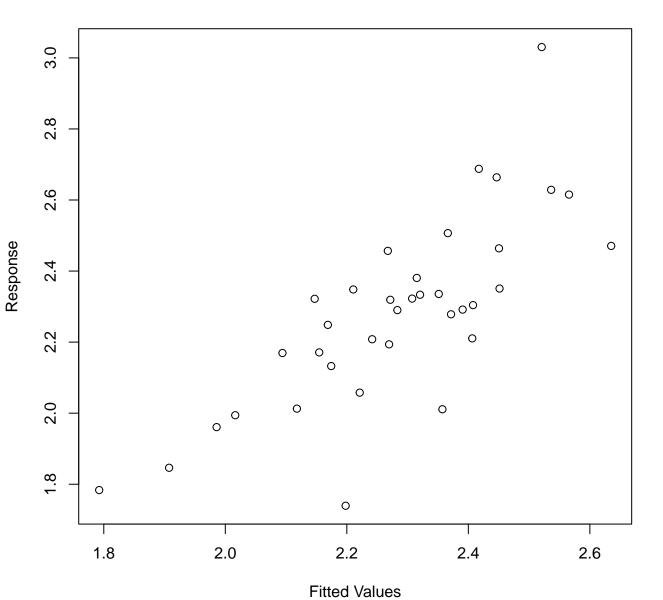
### Resids vs. linear pred.



# **Histogram of residuals**



#### Response vs. Fitted Values



Method: ML Optimizer: outer newton full convergence after 13 iterations.

Gradient range [-5.379547e-06,8.8966e-07]

(score -6.750531 & scale 0.03333811).

Hessian positive definite, eigenvalue range [5.379494e-06,18.1585]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

3.00 1.74 1.21 0.86

s(bites\_of\_yesterday) s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.30 0.96 s(ID) 4.00 2.20 NA NA # Check for Multicollinearity

Low Correlation

Term VIF VIF 95% CI Increased SE Tolerance Tolerance 95% CI s(cumul\_bites\_7\_previous\_days, k = 4) 2.42 [1.68, 3.95] 1.56 0.41 [0.25, 0.59]

Moderate Correlation

Term VIF VIF 95% CI Increased SE Tolerance Tolerance 95% CI s(bites\_of\_yesterday, k = 4) 7.01 [4.35, 11.80] 2.65 0.14 [0.08, 0.23]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

```
Estimate Std. Error t value Pr(>|t|)
(Intercept) 2.28167 0.05973 38.2 <2e-16 ***
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 0.1 ... 1
```

Approximate significance of smooth terms:

-ML = -6.7505 Scale est. = 0.033338 n = 36

```
edf Ref.df
                                              F p-value
s(bites_of_yesterday)
                              1.736 2.052 6.168 0.004766 **
s(cumul_bites_7_previous_days) 1.000 1.000 17.447 0.000235 ***
s(ID)
```

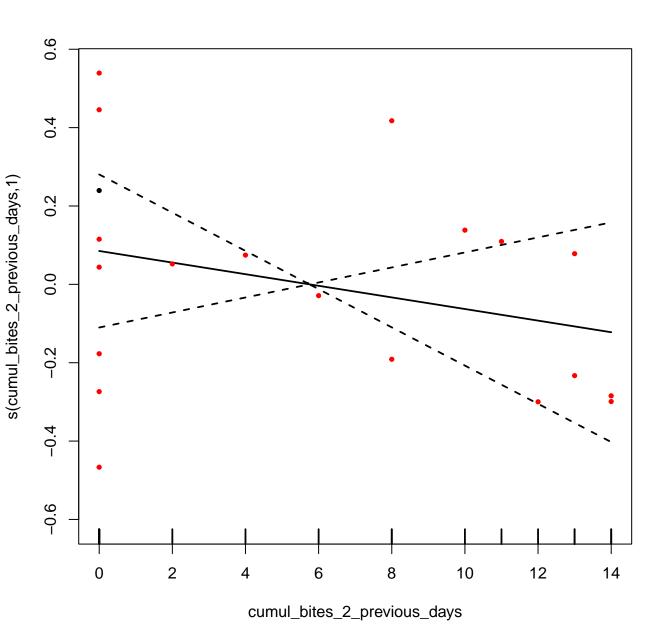
```
2.202 3.000 3.533 0.007181 **
```

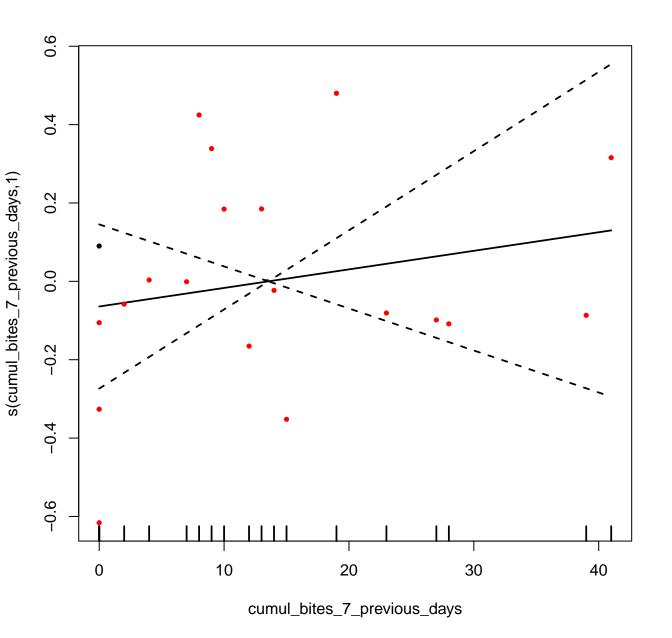
```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
R-sq.(adj) = 0.526 Deviance explained = 59.3%
```

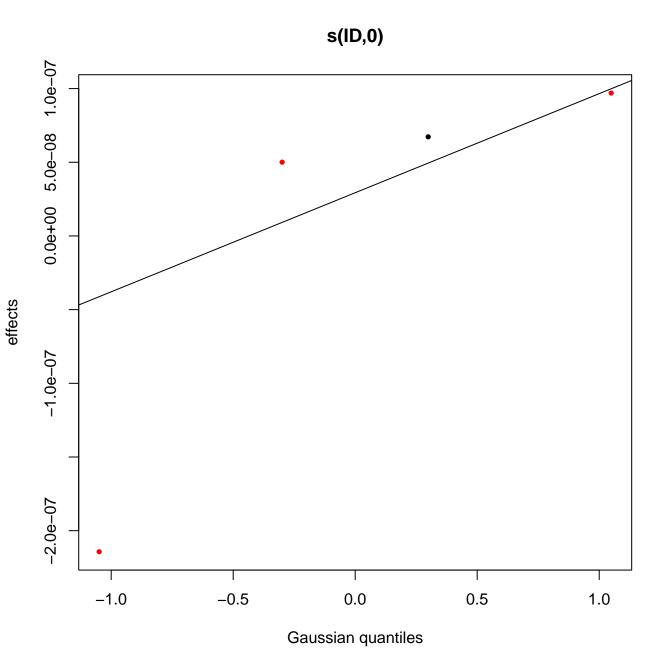
AICc [1] -5.998823

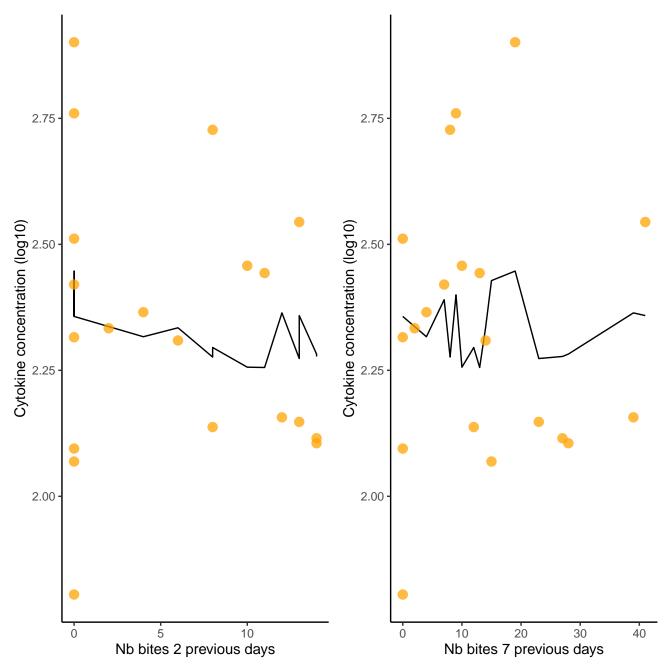


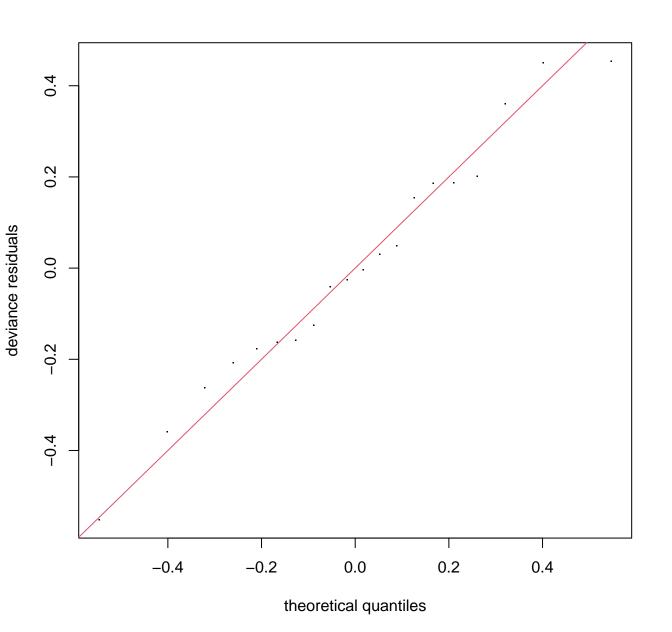
Nb excluded (LOD): 0 Nb remaining: 20



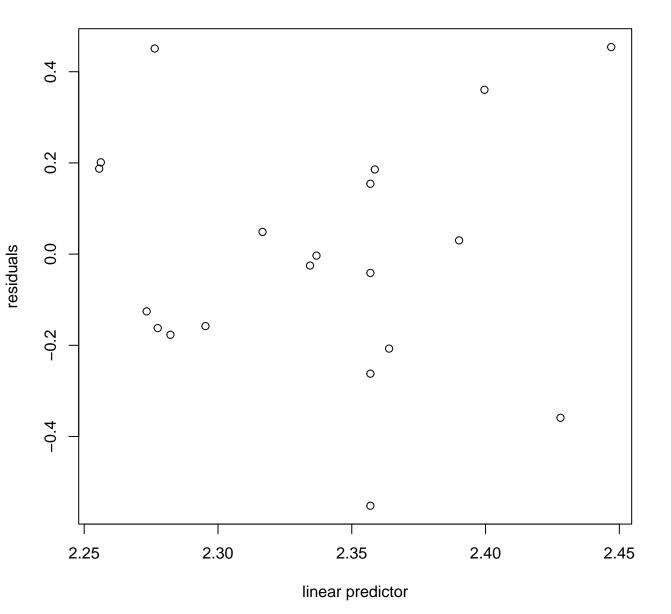




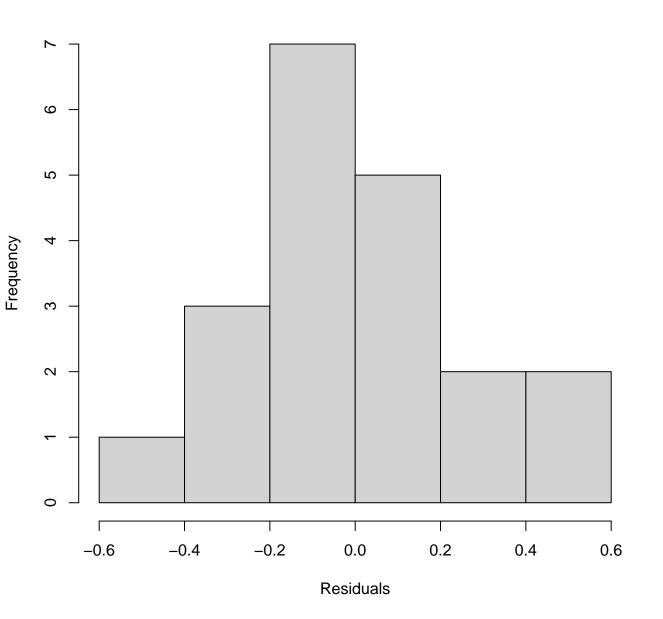




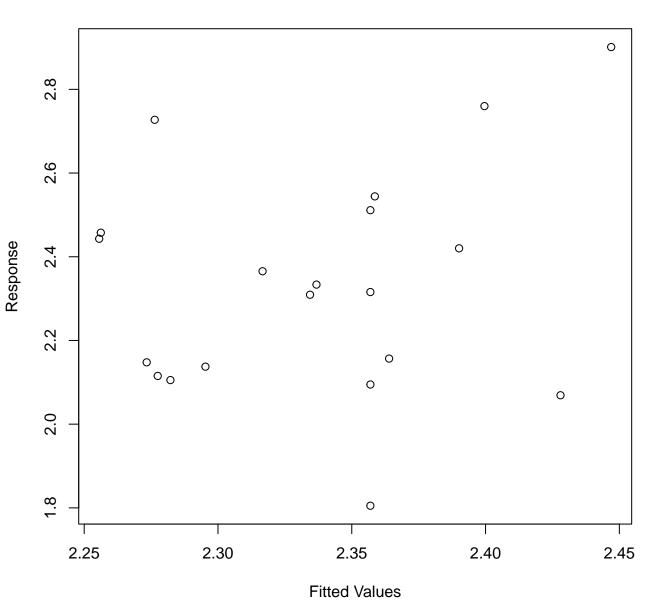
### Resids vs. linear pred.



# Histogram of residuals



### Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 15 iterations.

Gradient range [-1.283981e-06,2.041458e-06] (score 1.215388 & scale 0.07778399).

Hessian positive definite, eigenvalue range [3.105068e-07,9.999998]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(cumul\_bites\_2\_previous\_days) 3.00e+00 1.00e+00 1.29 0.83

s(cumul\_bites\_7\_previous\_days) 3.00e+00 1.00e+00 1.02 0.43 s(ID) 4.00e+00 4.09e-06 NA NA

# Check for Multicollinearity

Low Correlation

Term VIF VIF 95% CI Increased SE Tolerance Tolerance 95% CI s(cumul\_bites\_2\_previous\_days, k = 4) 1.06 [1.00, 15.02] 1.03 0.94 [0.07, 1.00]

s(cumul\_bites\_7\_previous\_days, k = 4) 1.06 [1.00, 15.02] 1.03 0.94 [0.07, 1.00]

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1

edf Ref.df

F p-value

1 0.375 0.548 3 0.000 0.578

(Intercept) 2.33597 0.06236 37.46 <2e-16 \*\*\*

R-sq.(adj) = -0.0696 Deviance explained = 4.3% -ML = 1.2154 Scale est. = 0.077784 n = 20

4.086e-06

Approximate significance of smooth terms:

s(cumul\_bites\_7\_previous\_days) 1.000e+00

Family: gaussian

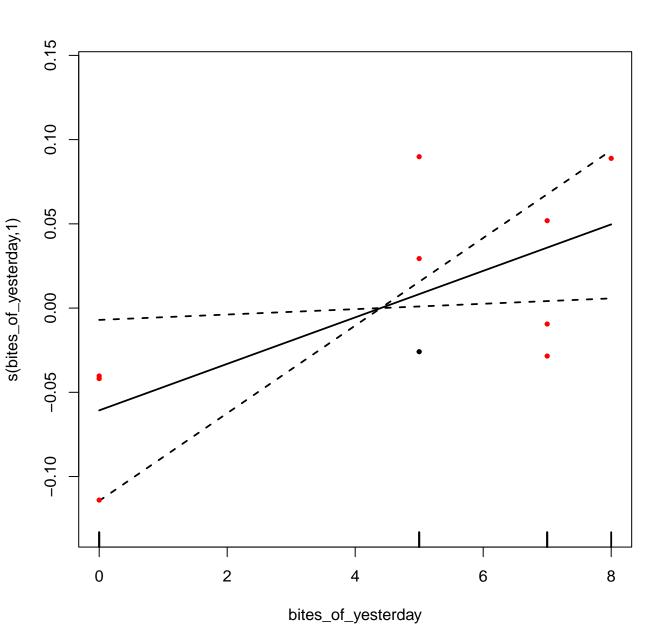
s(ID)

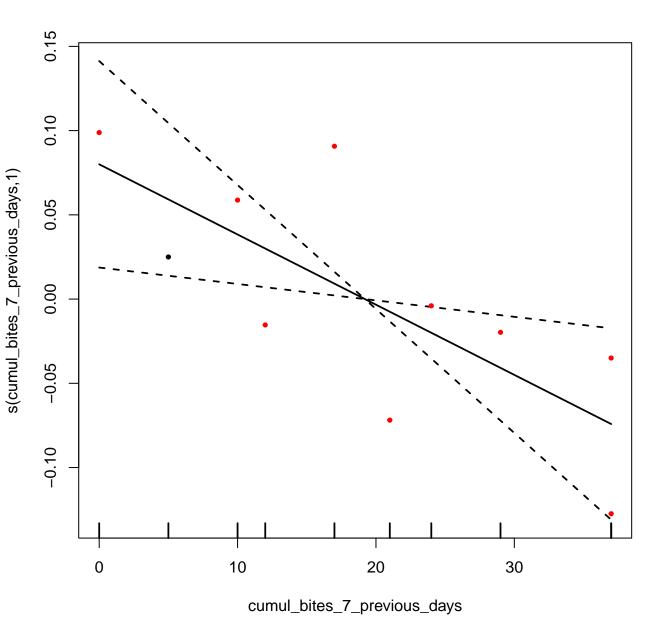
AICc [1] 13.09746



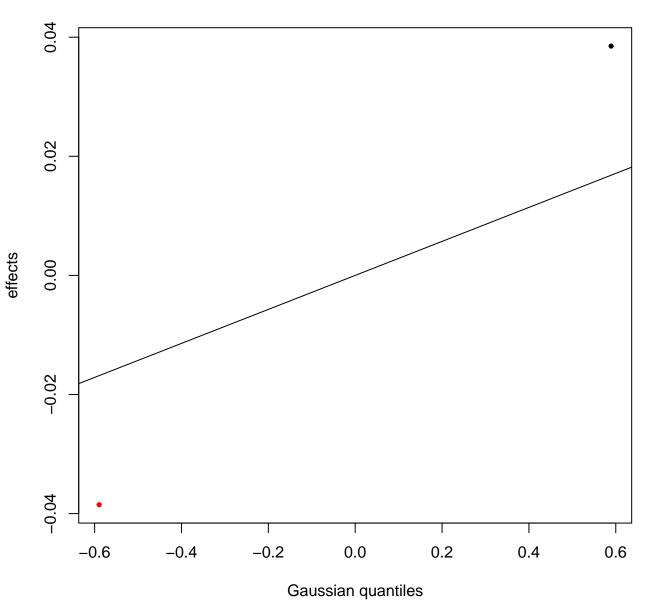


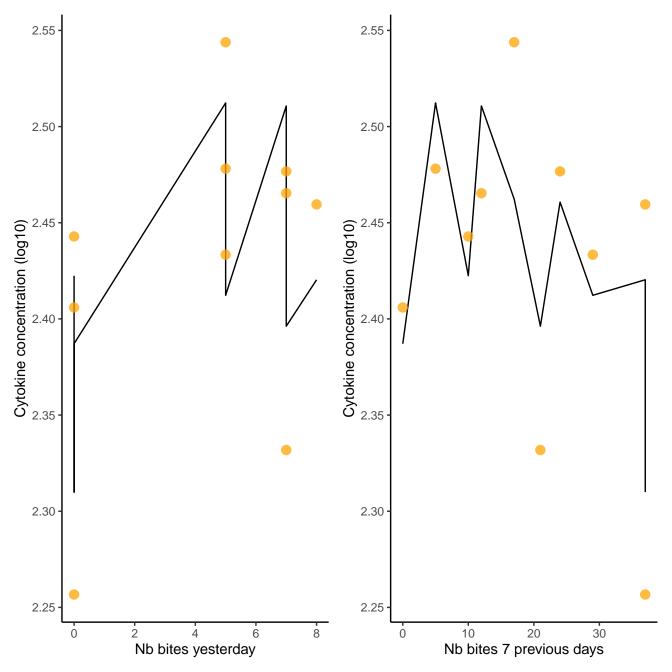
Nb excluded (LOD): 26 Nb remaining: 10

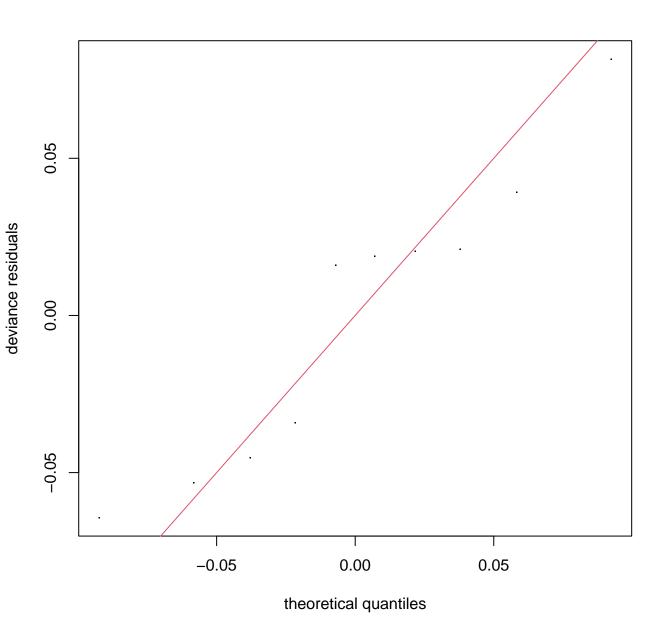




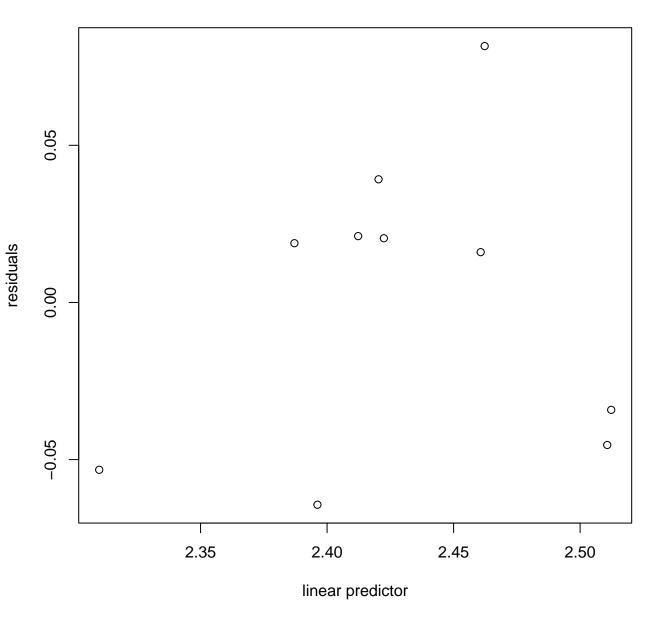




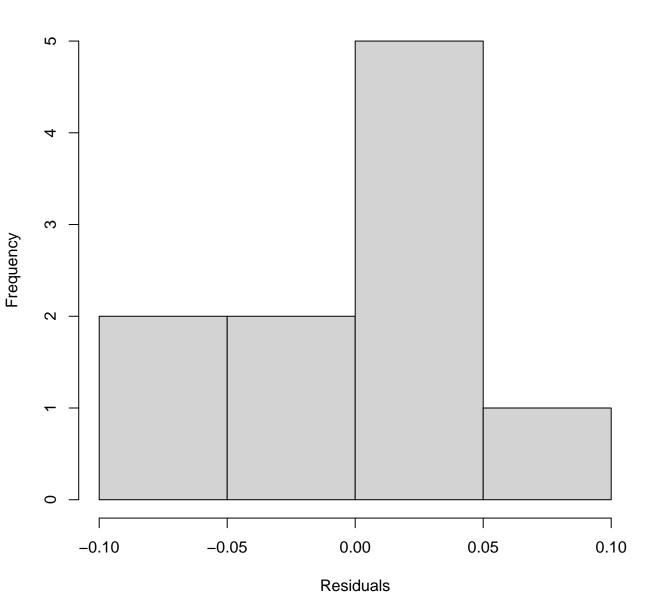




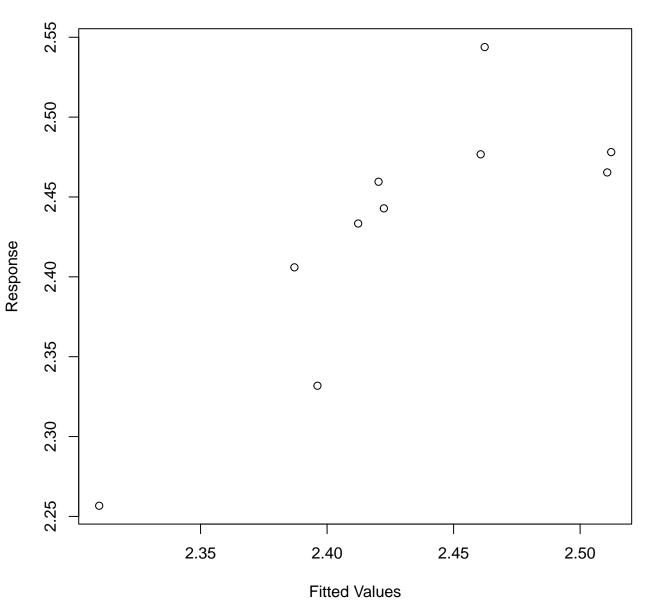
Resids vs. linear pred.



# **Histogram of residuals**



### Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 12 iterations. Gradient range [-4.171852e-06,3.468629e-07]

(score -14.58438 & scale 0.003154247). Hessian positive definite, eigenvalue range [2.711971e-06,5.121056]. Model rank = 9 / 9

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

edf k-index p-value k' s(bites\_of\_yesterday) 1.56 0.92 3.000 1.000 s(cumul\_bites\_7\_previous\_days) 3.000 1.000 1.76 0.96

s(ID) 2.000 0.702 NA NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SI	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.57	[1.21,	2.60]	1.2	0.64	[0.39, 0.83]
s(cumul_bites_7_previous_days, k	= 4)	1.57	[1.21,	2.60]	1.2	0.64	[0.39, 0.83]

```
Estimate Std. Error t value Pr(>|t|)
(Intercept) 2.40632 0.04235 56.83 8.89e-10 ***
```

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 1
```

```
edf Ref.df F p-value s(bites_of_yesterday) 1.0000 1 5.114 0.0644 . s(cumul_bites_7_previous_days) 1.0000 1 6.817 0.0401 * s(ID) 0.7017 1 3.726 0.0607 .
```

```
R-sq.(adj) = 0.527 Deviance explained = 66.9%

-ML = -14.584 Scale est. = 0.0031542 n = 10
```

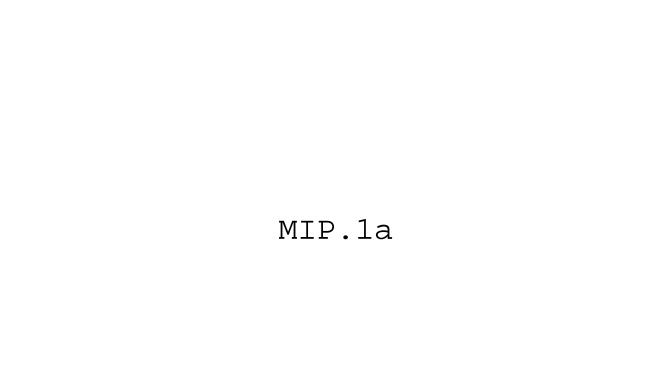
Approximate significance of smooth terms:

AICc [1] -9.813471



Nb excluded (LOD): 20 Nb remaining: 0

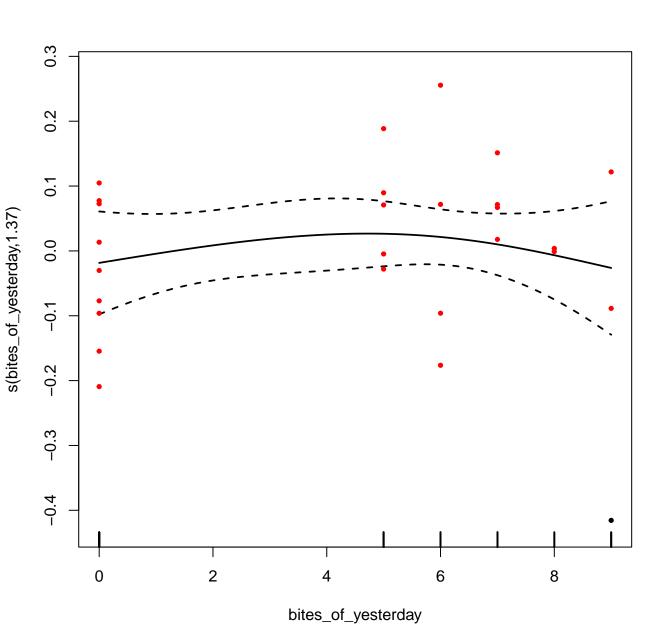
MIG ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

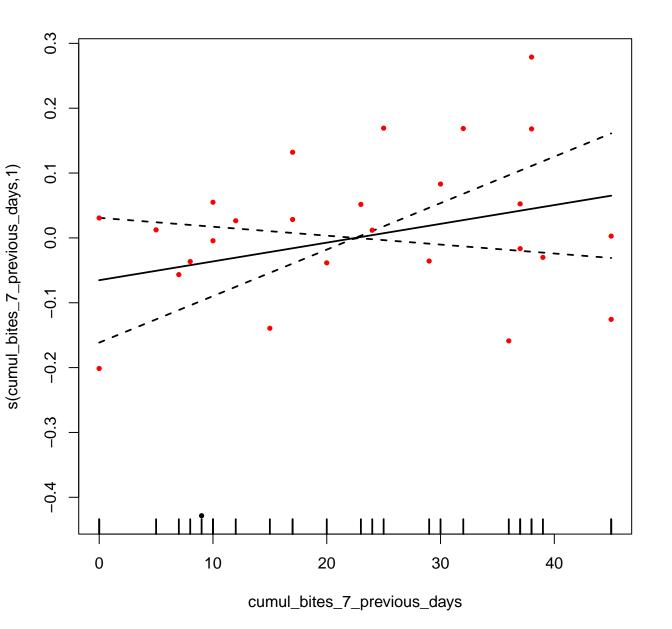




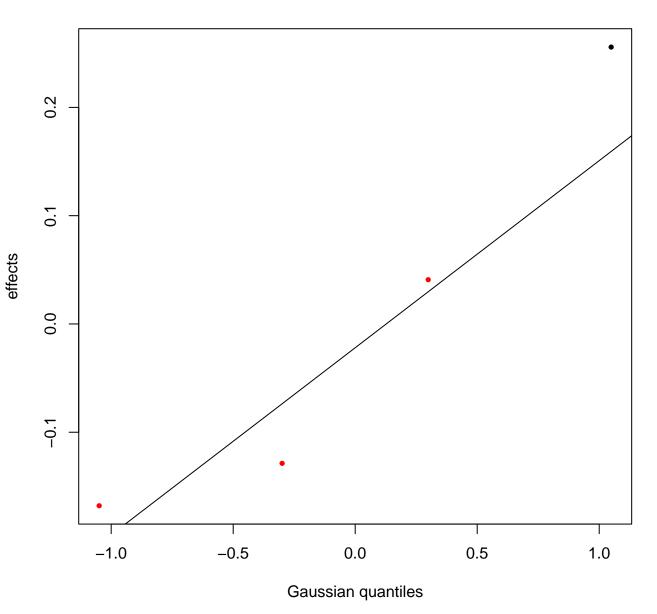
Nb excluded (LOD): 9

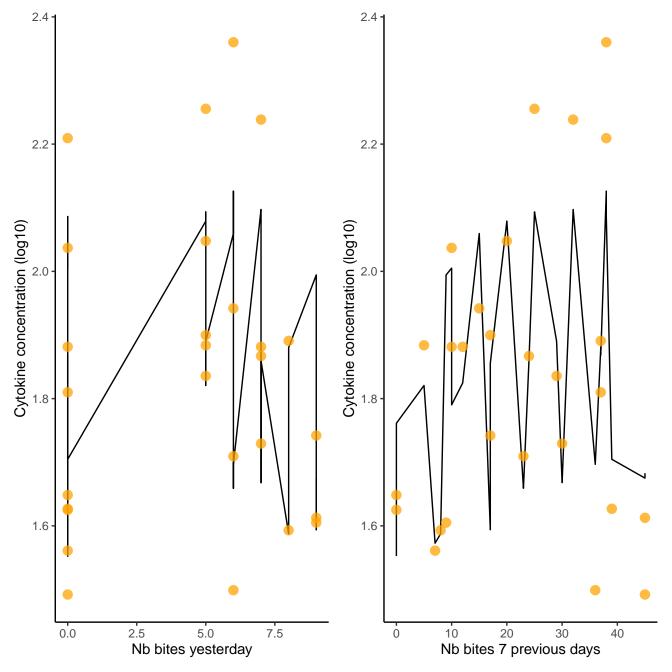
Nb remaining: 27

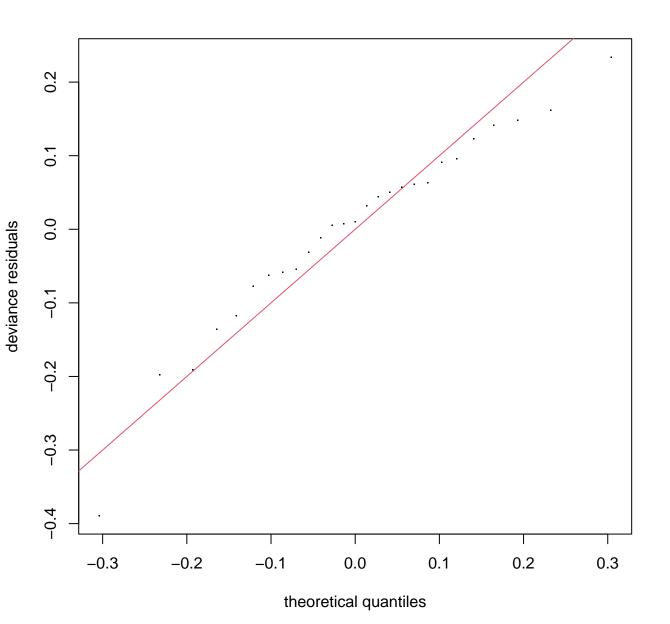




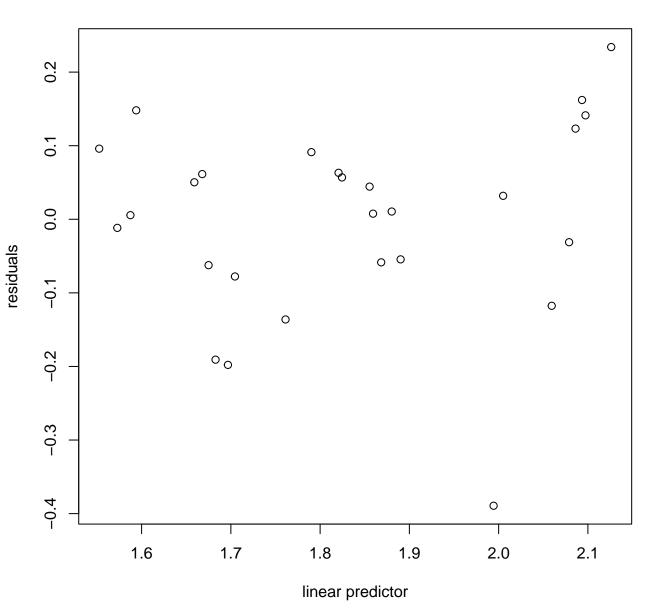




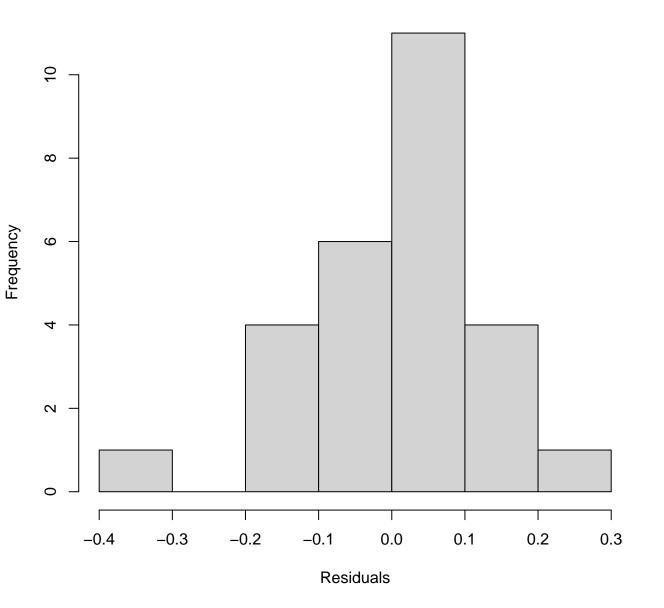




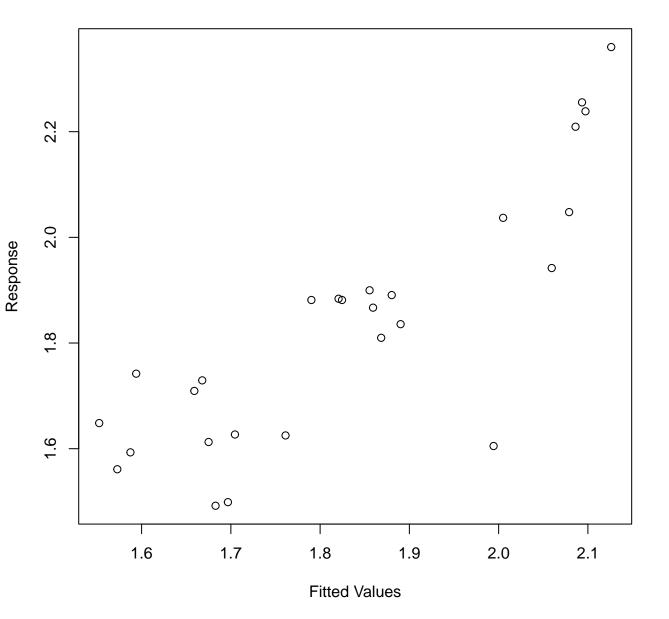
### Resids vs. linear pred.



## Histogram of residuals



### Response vs. Fitted Values



Method: ML Optimizer: outer newton full convergence after 11 iterations.

Gradient range [-5.325851e-06,3.727163e-06]

(score -9.457523 & scale 0.02126638). Hessian positive definite, eigenvalue range [5.325747e-06,13.7521].

Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value 1.19 3.00 1.37 0.78

s(bites\_of\_yesterday) s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.12 0.71 s(ID) 4.00 2.51 NA NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday,	k = 4)	1.91	[1.37,	3.26]	1.38	0.52	[0.31, 0.73]
s(cumul_bites_7_previous_days,	k = 4)	1.29	[1.06,	2.42]	1.14	0.77	[0.41, 0.94]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

```
Estimate Std. Error t value Pr(>|t|)
                     0.1017 17.73 3.64e-14 ***
(Intercept) 1.8041
```

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1 Approximate significance of smooth terms:

```
edf Ref.df
                                             F p-value
s(bites_of_yesterday)
                             1.366 1.614 0.379
                                                    0.595
s(cumul_bites_7_previous_days) 1.000 1.000 1.838
                                                    0.190
s(ID)
```

2.511 3.000 12.974 1.61e-05 \*\*\*

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
```

R-sq.(adj) = 0.63 Deviance explained = 69.9% -ML = -9.4575 Scale est. = 0.021266 n = 27

AICc [1] -12.1736



Nb excluded (LOD): 19 Nb remaining: 1

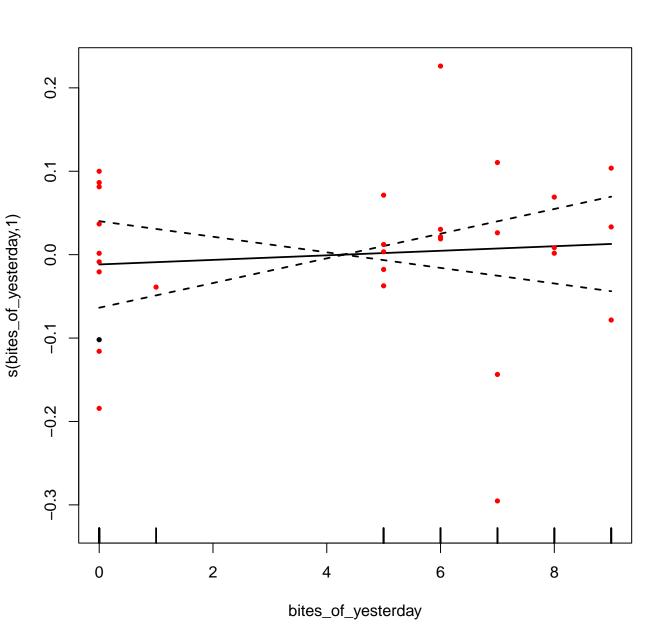


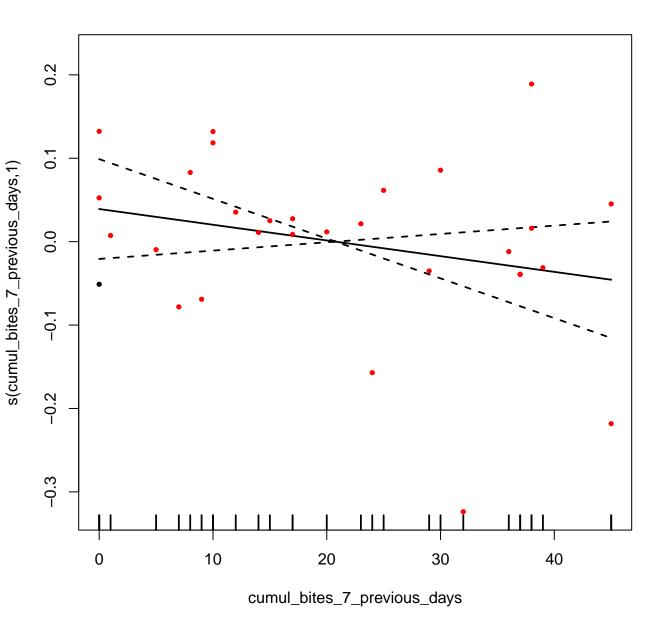
MIP.1a ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile

MIP.1B

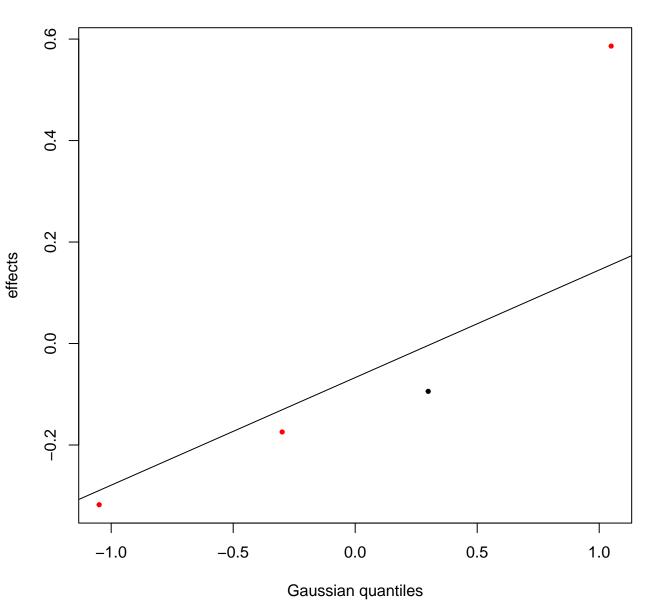


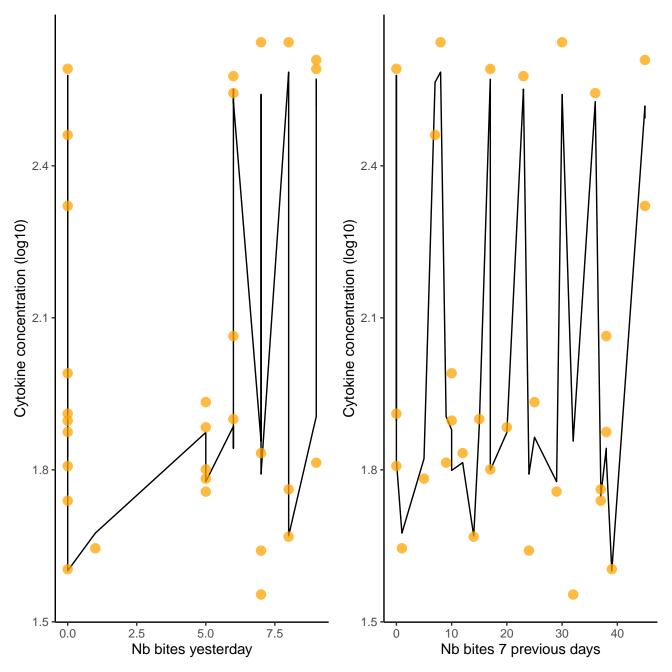
Nb excluded (LOD): 6
Nb remaining: 30

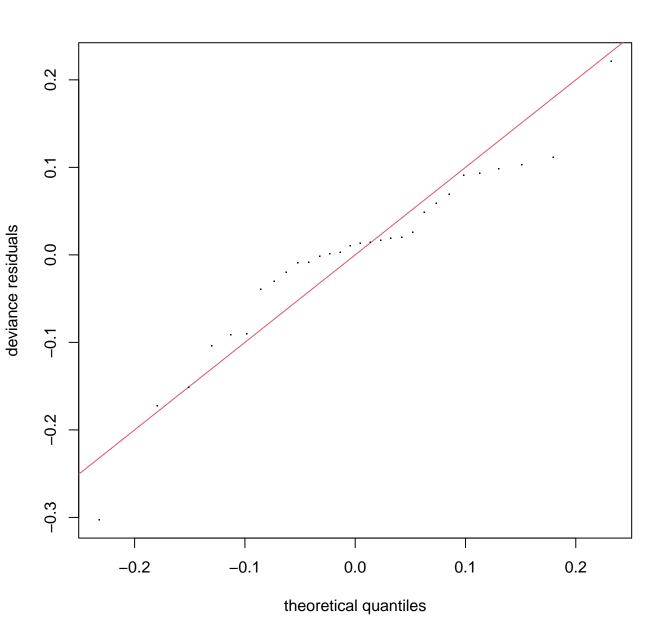




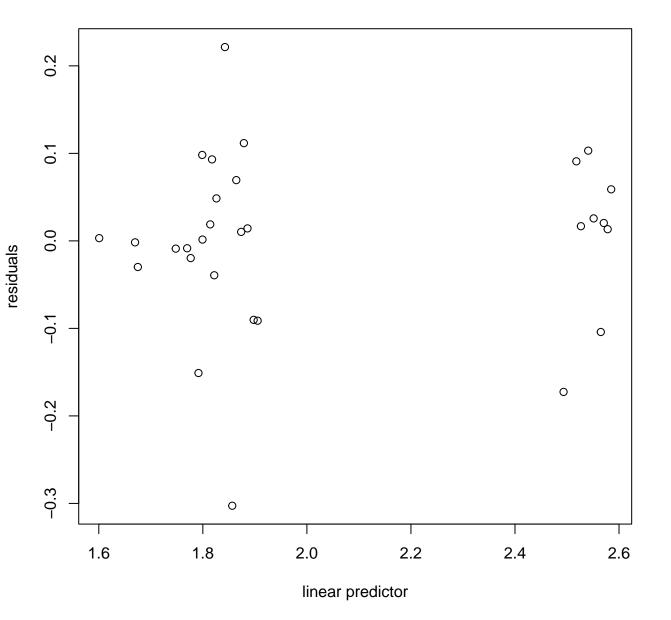




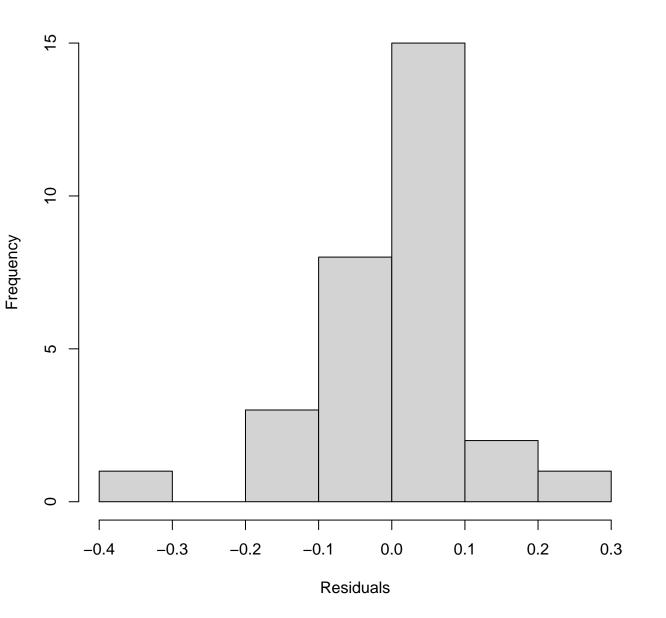




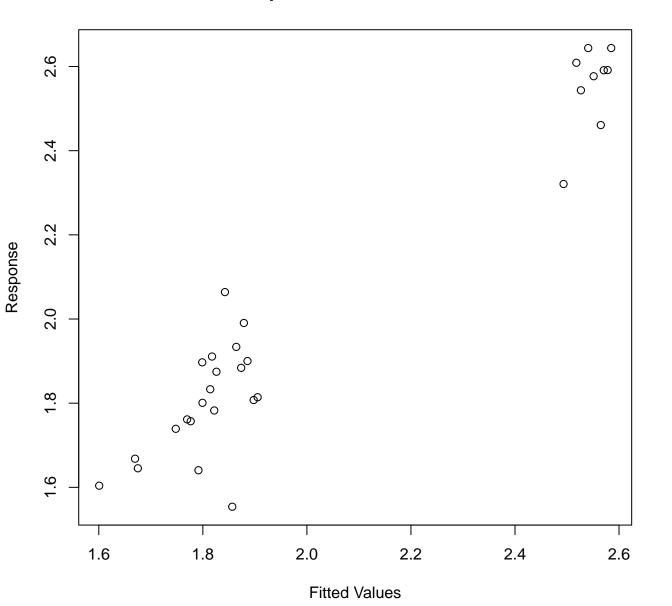
## Resids vs. linear pred.



## Histogram of residuals



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 11 iterations. Gradient range [-5.243059e-06,9.613701e-08] (score -16.40787 & scale 0.01189612).

Hessian positive definite, eigenvalue range [1.388128e-06,15.29097]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value s(bites\_of\_yesterday) 1.13 0.70

3.00 1.00 s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.21 0.83 s(ID) 4.00 2.96 NA NA

### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, )	k = 4	1.44	[1.13,	2.48]	1.20	0.70	[0.40, 0.89]
s(cumul_bites_7_previous_days, l	k = 4	1.44	[1.13,	2.48]	1.20	0.70	[0.40, 0.89]

```
Estimate Std. Error t value Pr(>|t|)
(Intercept) 1.9646 0.1837 10.69 1.28e-10 ***
```

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 1

```
Approximate significance of smooth terms:

edf Ref.df F p-value
s(bites_of_yesterday) 1.000 1 0.205 0.655
s(cumul_bites_7_previous_days) 1.000 1 1.709 0.204
```

s(Dres\_or\_yesterday) 1.000 1 0.205 0.555 s(cumul\_bites\_7\_previous\_days) 1.000 1 1.709 0.204 s(ID) 2.955 3 99.461 <2e-16 \*\*\*

```
Signif. codes: 0 ...***.. 0.001 ...**.. 0.01 ...*.. 0.05 ..... 1

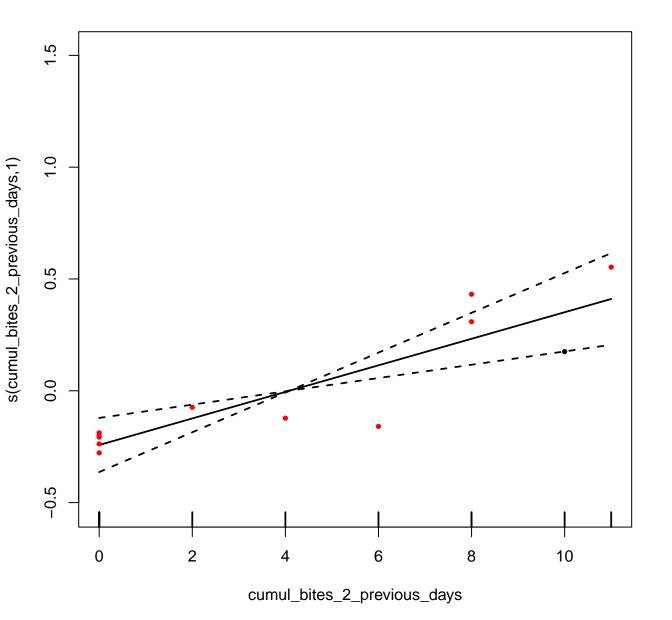
R-sq.(adj) = 0.913 Deviance explained = 92.8%

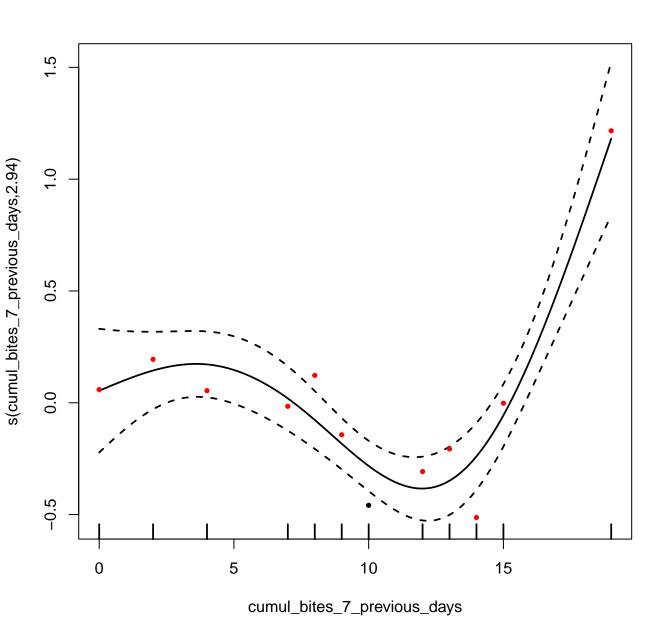
-ML = -16.408 Scale est. = 0.011896 n = 30
```

AICc [1] -35.37677

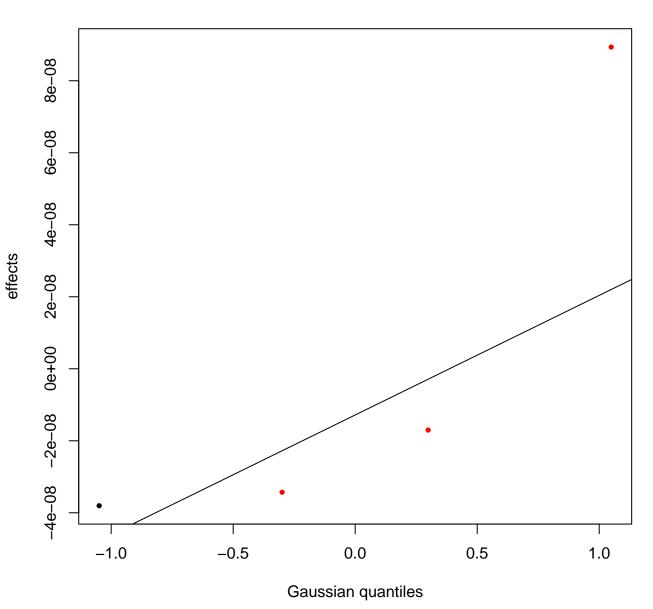


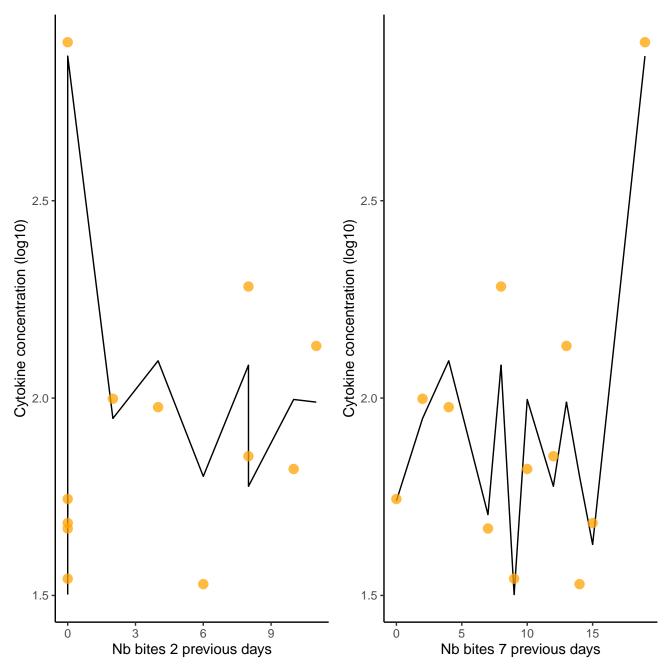
Nb excluded (LOD): 8
Nb remaining: 12

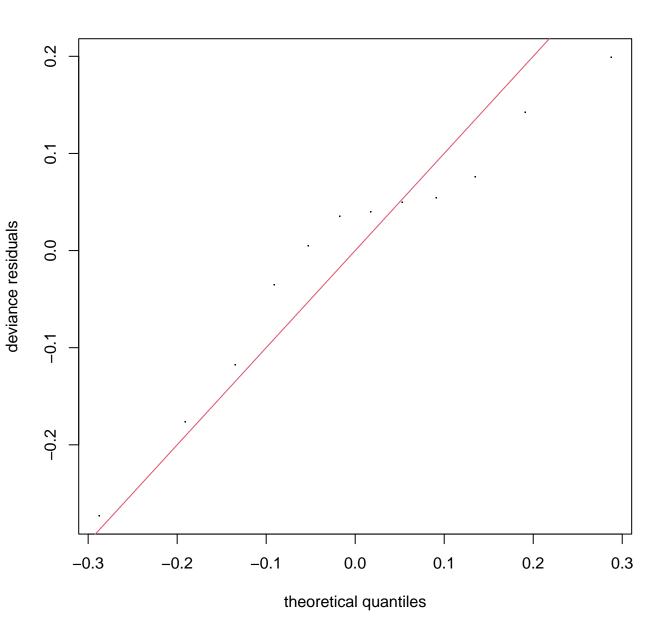




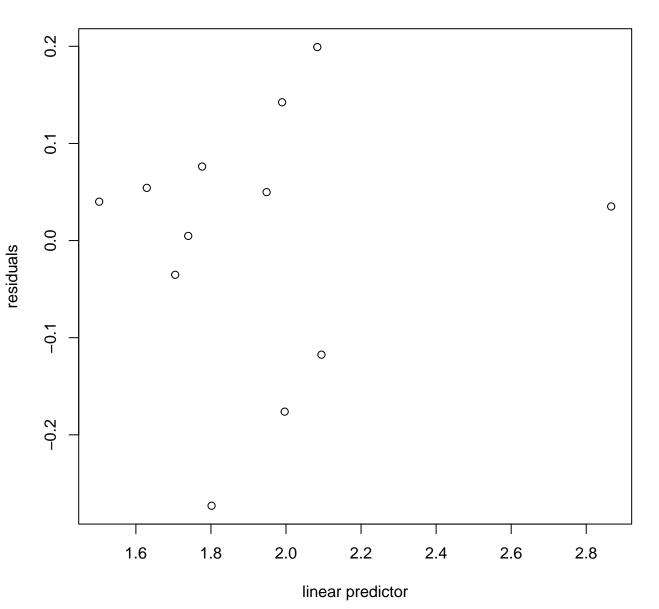
s(ID,0)



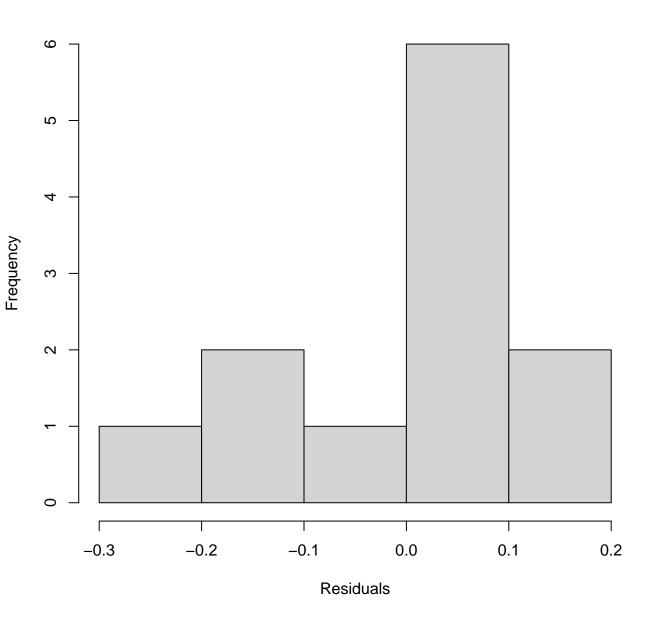




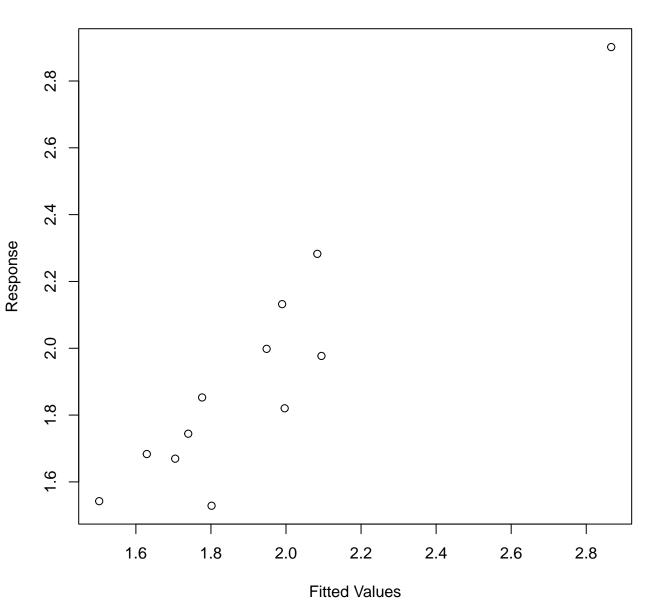
Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

s(ID)

full convergence after 14 iterations. Gradient range [-1.93942e-06,6.756941e-07]

(score -1.110181 & scale 0.02758297). Hessian positive definite, eigenvalue range [1.063015e-07,6.187841]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value s(cumul\_bites\_2\_previous\_days) 3.00e+00 1.00e+00 1.30 0.68

s(cumul\_bites\_7\_previous\_days) 3.00e+00 2.94e+00 1.43 0.84

4.00e+00 3.01e-06

NA

NA

# Check for Multicollinearity

Low Correlation

Term VIF VIF 95% CI Increased SE Tolerance Tolerance 95% CI s(cumul\_bites\_2\_previous\_days, k = 4) 1.06 [1.00, 12.75] 1.03 0.94 [0.08, 1.00]

s(cumul\_bites\_7\_previous\_days, k = 4) 1.06 [1.00, 12.75] 1.03 0.94 [0.08, 1.00]

edf Ref.df

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 1

3.012e-06 3.000 0.00 0.83051

s(cumul\_bites\_2\_previous\_days) 1.000e+00 1.000 16.05 0.00514 \*\* s(cumul\_bites\_7\_previous\_days) 2.943e+00 2.998 16.34 0.00148 \*\*

F p-value

Approximate significance of smooth terms:

R-sq.(adj) = 0.811 Deviance explained = 87.9% -ML = -1.1102 Scale est. = 0.027583 n = 12

s(ID)

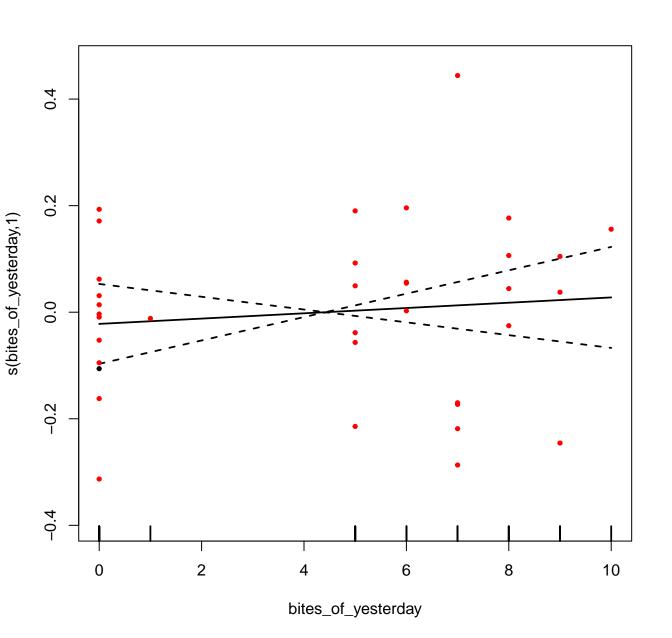
AICc [1] 13.37184

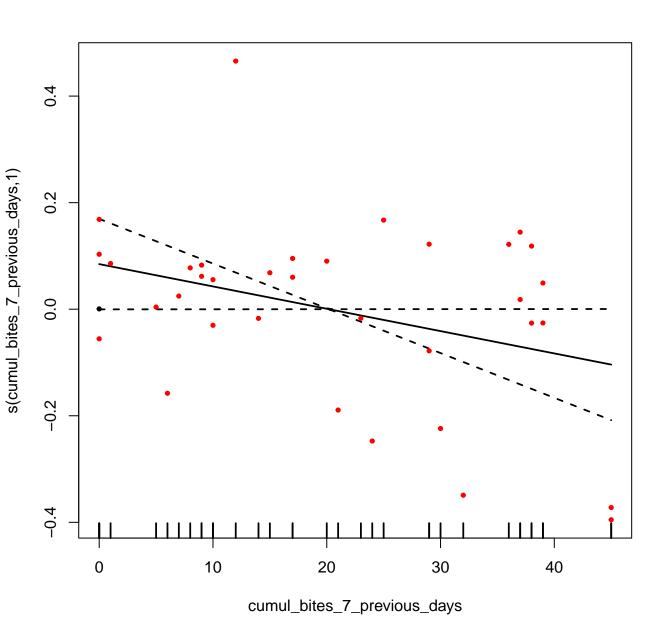




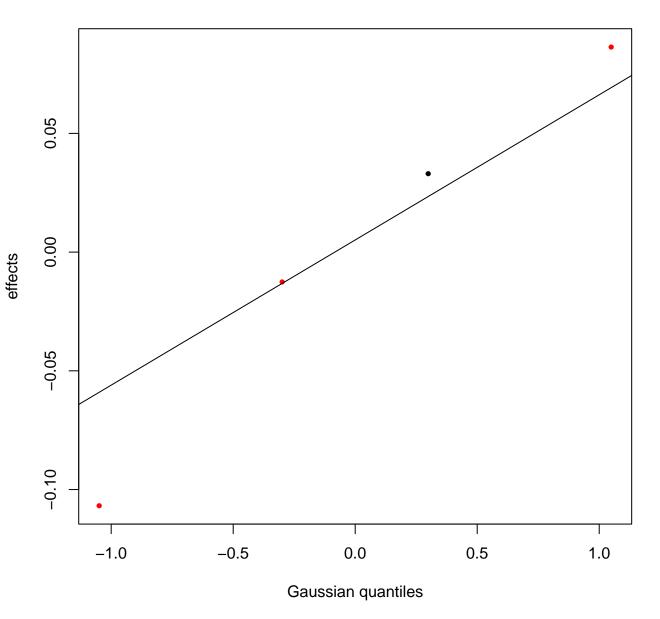
Nb excluded (LOD): 0

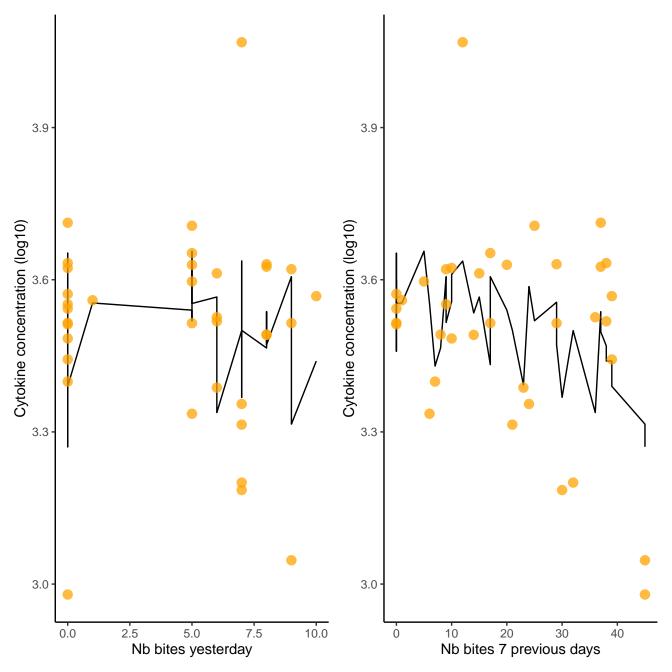
Nb remaining: 36

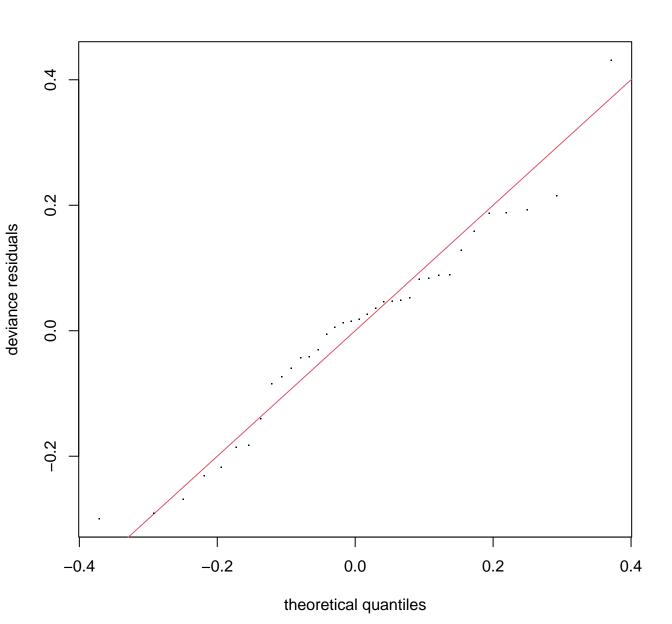




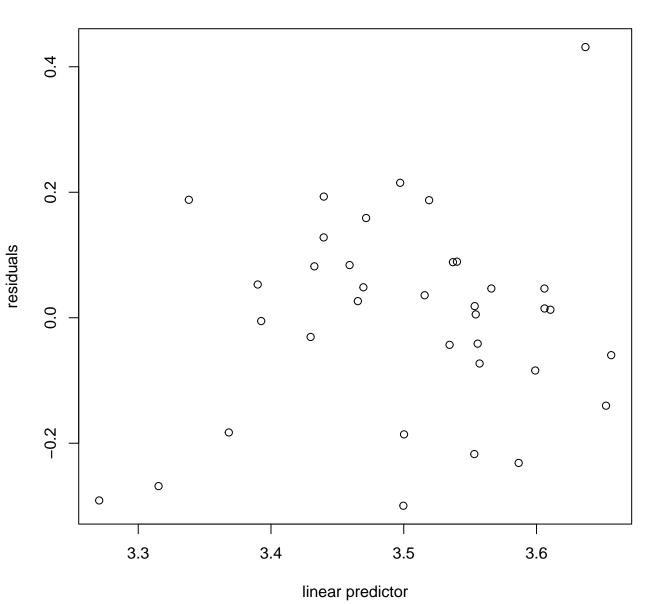




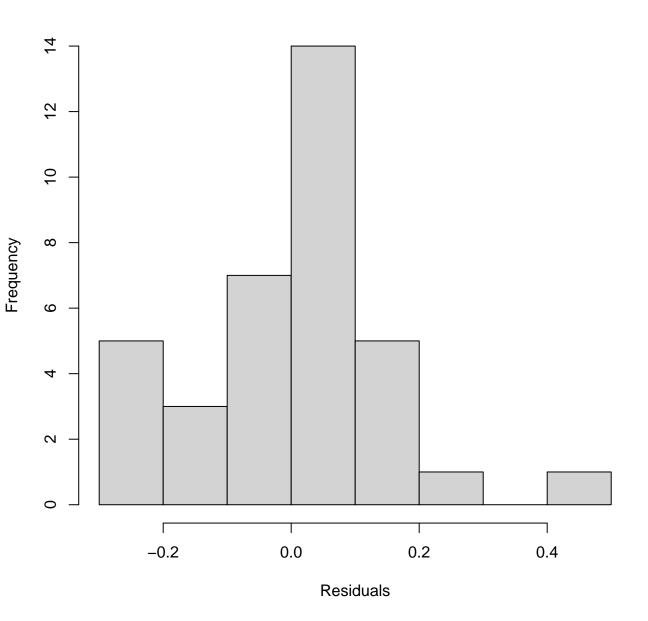




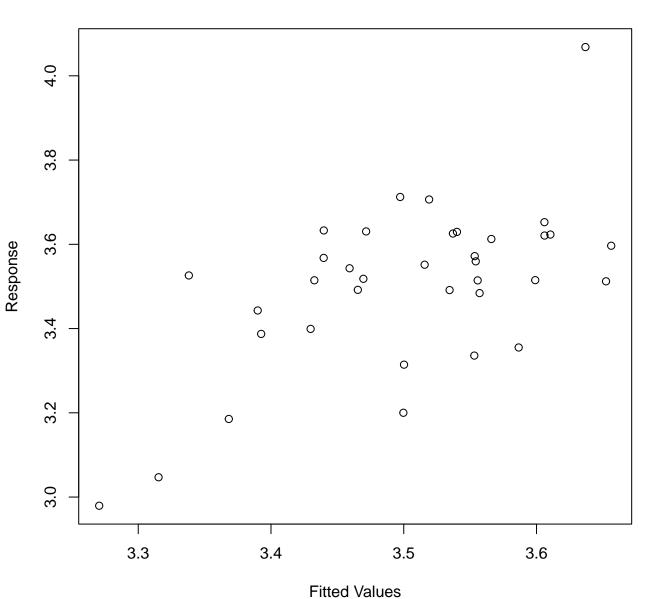
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 13 iterations. Gradient range [-3.764127e-06,6.881425e-07]

(score -11.81336 & scale 0.02846092).

Hessian positive definite, eigenvalue range [1.894229e-06,18.11682]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

s(bites\_of\_yesterday)

s(cumul\_bites\_7\_previous\_days) 3.00 1.00 s(ID)

k' edf k-index p-value 3.00 1.00

4.00 2.12

0.93

NA

1.18

NA

0.79

0.27

### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% C	!I	Increased	SE	Tolerance	Tolerance	95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00]	3.31	.]	1.	05	0.90	[0.30,	1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00]	3.31	.]	1.	05	0.90	[0.30,	1.00]

```
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

Estimate Std. Error t value Pr(>|t|) (Intercept) 3.50332 0.05196 67.42 <2e-16 \*\*\*

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 0.1 ... 1 Approximate significance of smooth terms:

edf Ref.df F p-value s(bites\_of\_yesterday) 1 0.343 0.5626 1.000 s(cumul\_bites\_7\_previous\_days) 1.000 1 3.972 0.0551 . s(ID)

3 2.968 0.0131 \* 2.115 Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ....... 1

R-sq.(adj) = 0.26 Deviance explained = 34.7% -ML = -11.813 Scale est. = 0.028461 n = 36

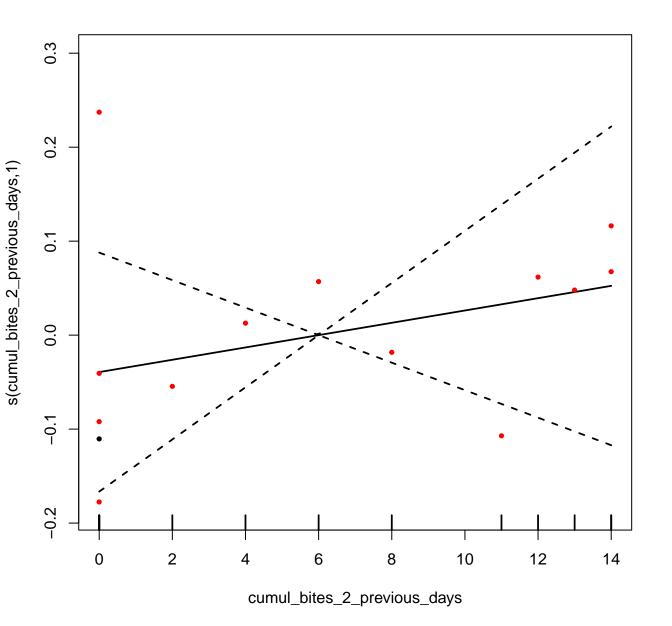
Family: gaussian

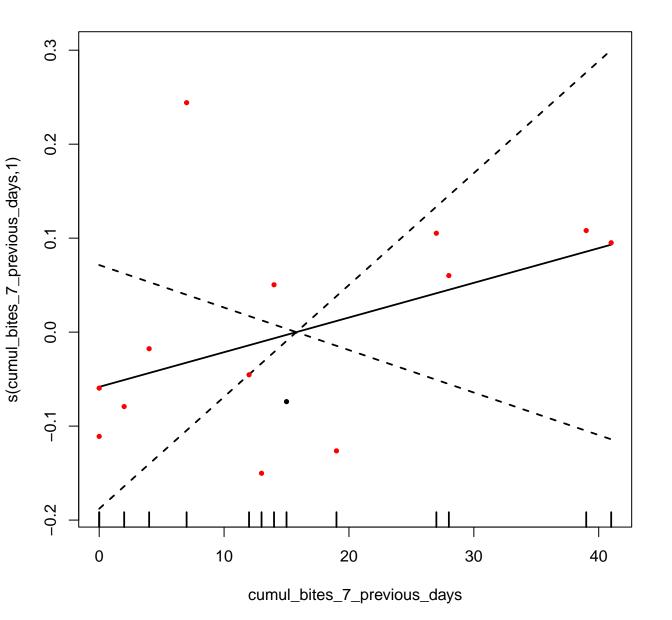
AICc [1] -14.31658



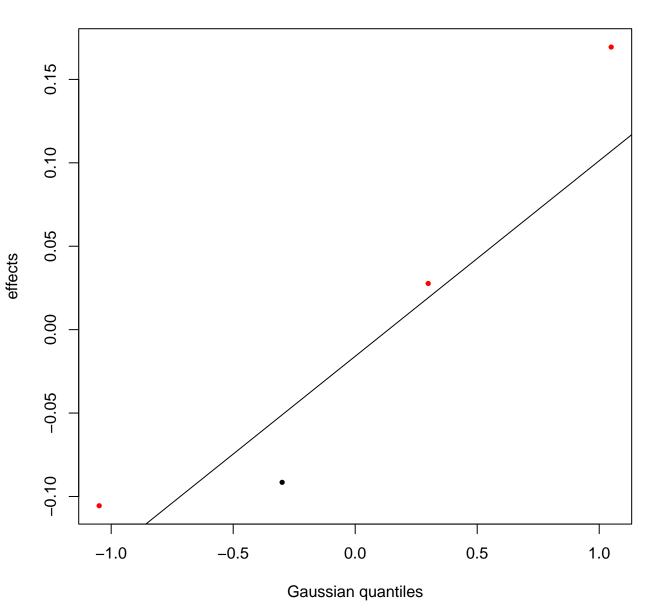
Nb remaining: 14

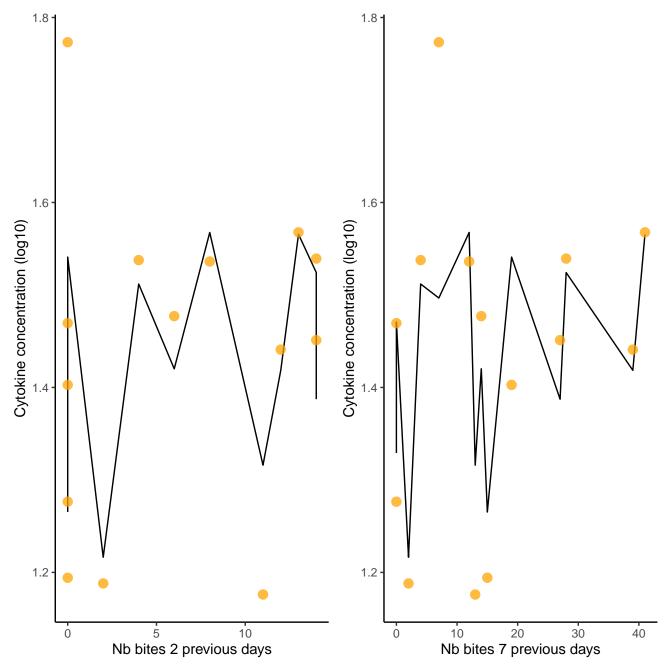
Nb excluded (LOD): 6

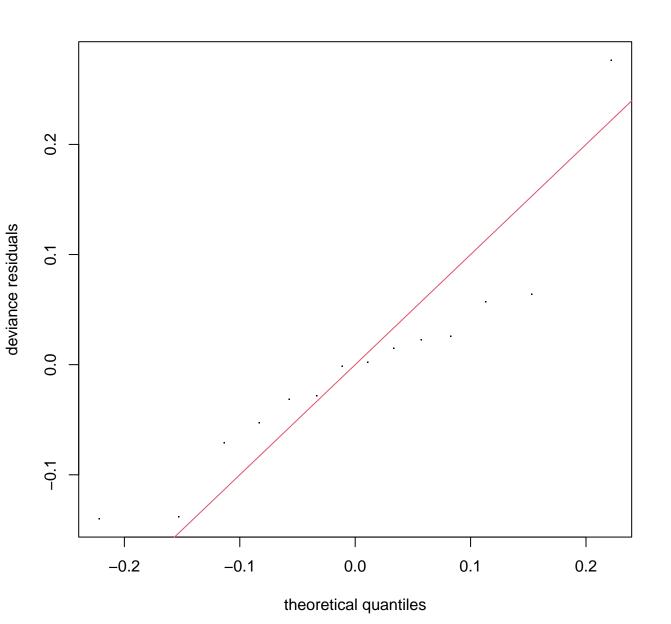




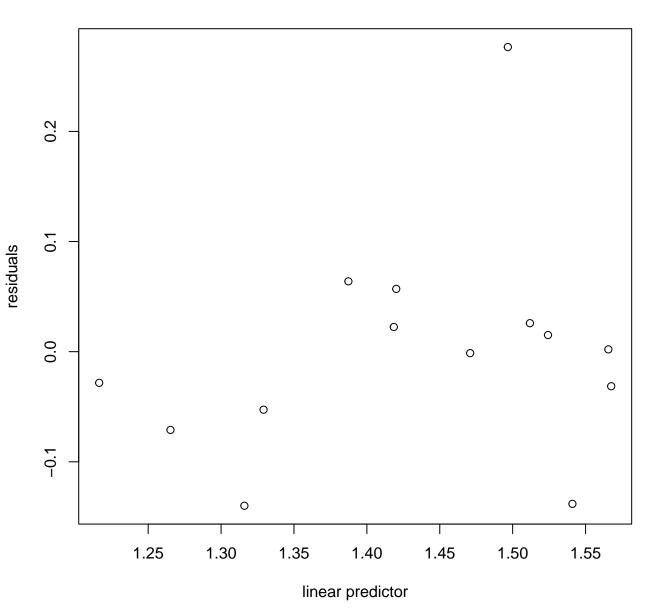
s(ID,2.18)



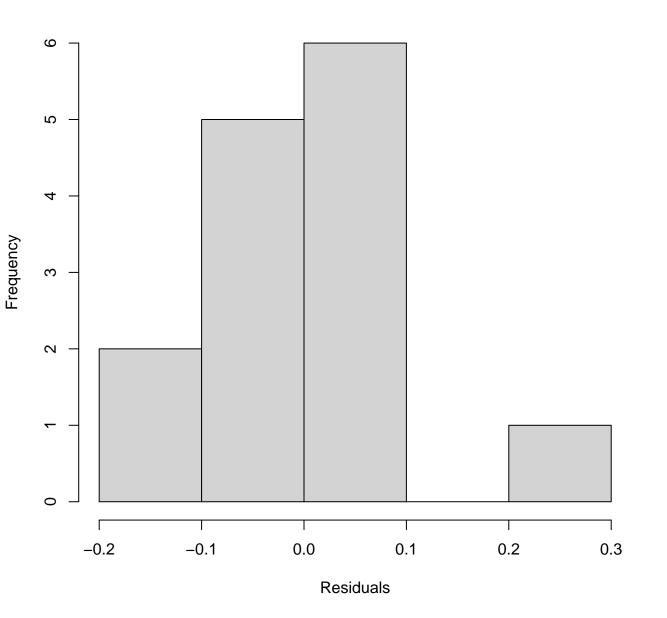




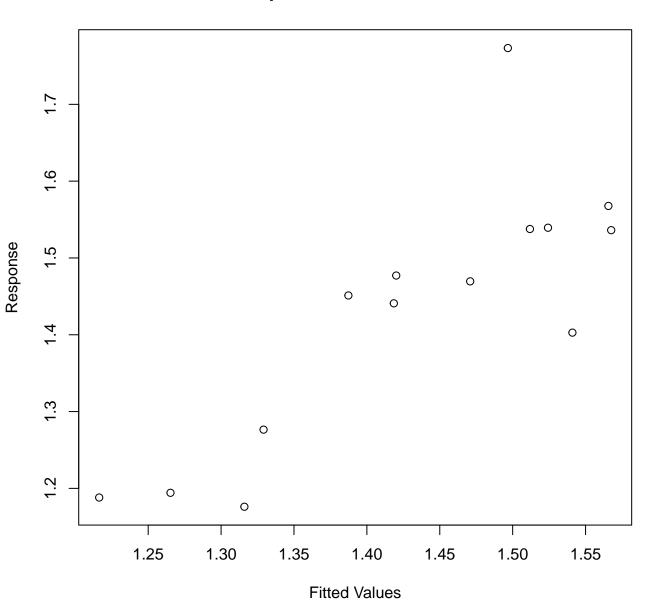
## Resids vs. linear pred.



# **Histogram of residuals**



## Response vs. Fitted Values



Method: ML Optimizer: outer newton full convergence after 14 iterations.

Gradient range [-1.507615e-06,2.332719e-07]

(score -7.714901 & scale 0.01514088).

Hessian positive definite, eigenvalue range [1.212386e-06,7.38932].

Model rank = 11 / 11Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(cumul\_bites\_2\_previous\_days) 3.00 1.00 1.28 0.78 s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.13 0.58 s(ID) 4.00 2.18 NA NA # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95%	CI	Increased	SE	Tolerance	Tolerance	95% CI
<pre>s(cumul_bites_2_previous_days, s(cumul_bites_7_previous_days,</pre>							01	0.98 0.98		, 1.00] , 1.00]

F p-value

1 0.383 0.5515

1 0.807 0.3923

3 4.176 0.0183 \*

edf Ref.df

Signif. codes: 0 ...\*\*\*... 0.001 ...\*\*... 0.01 ...\*... 0.05 ...... 1

2.182

Approximate significance of smooth terms:

R-sq.(adj) = 0.48 Deviance explained = 64.8% -ML = -7.7149 Scale est. = 0.015141 n = 14

s(cumul\_bites\_2\_previous\_days) 1.000

s(cumul\_bites\_7\_previous\_days) 1.000

s(ID)

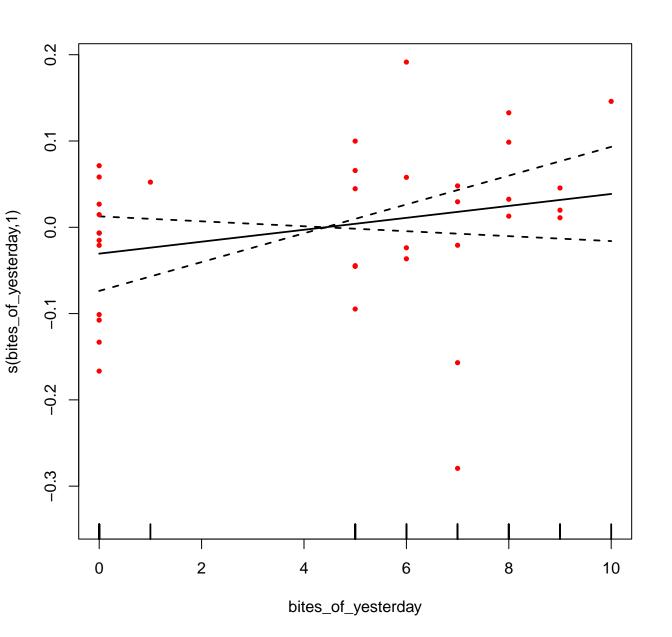
AICc [1] 4.580474

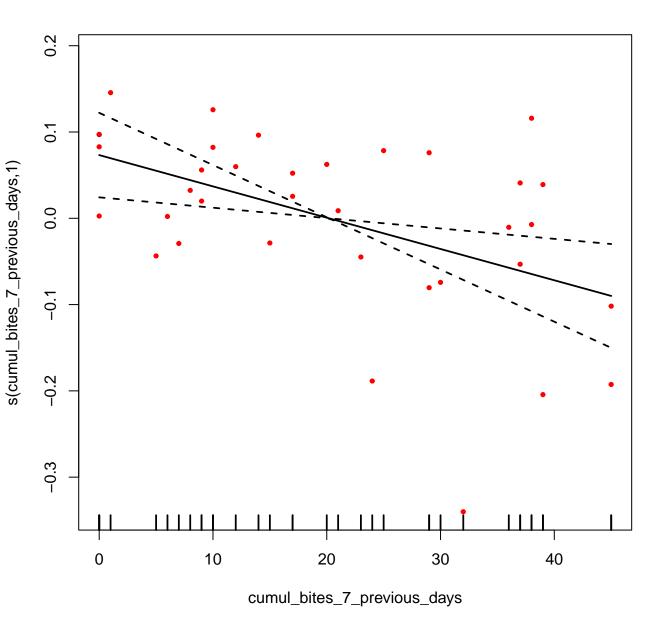


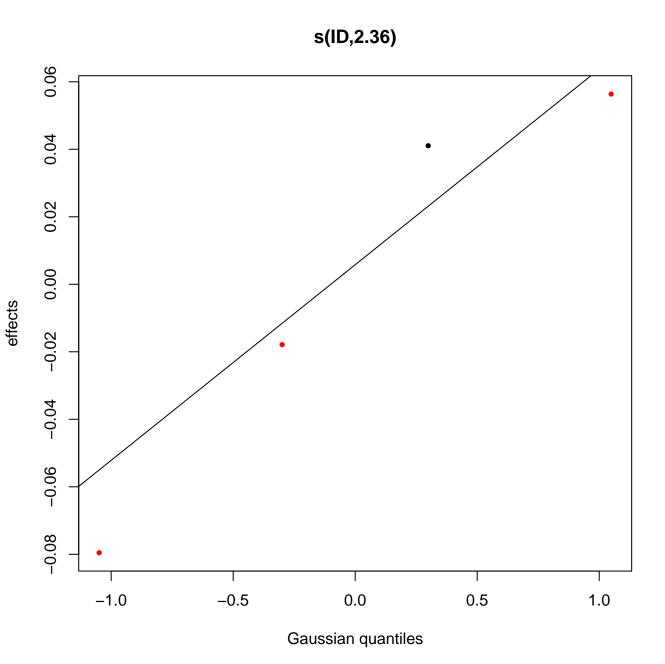


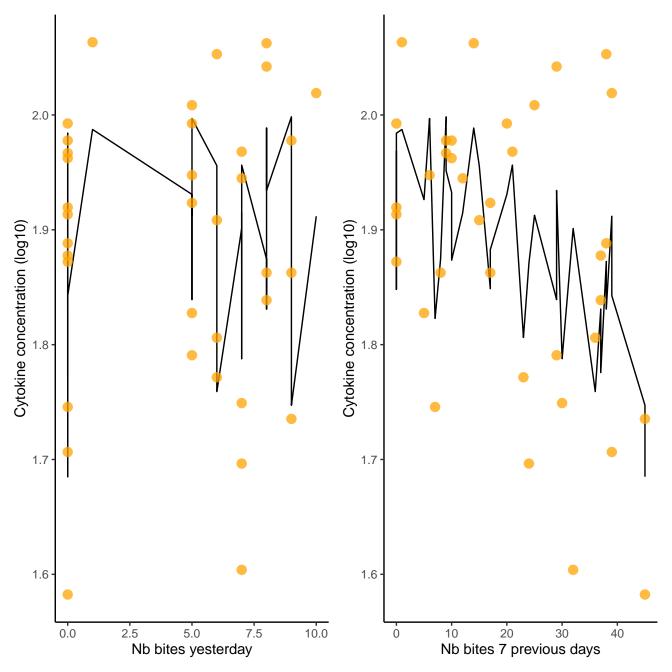
Nb excluded (LOD): 0

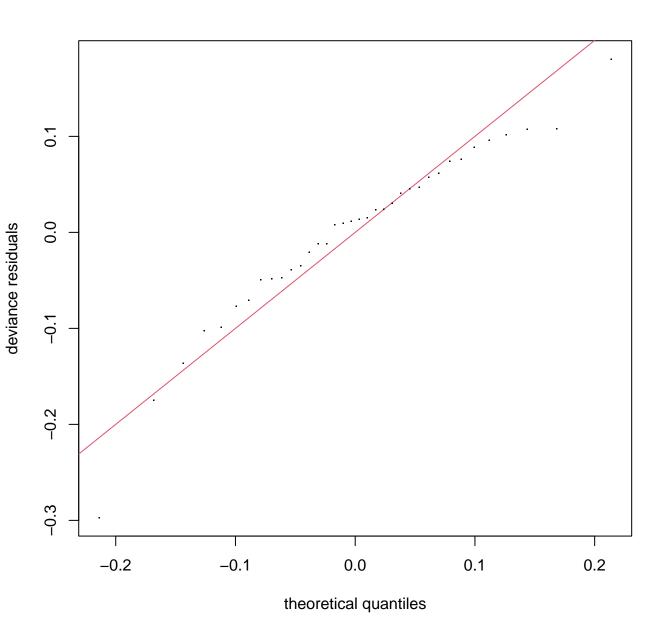
Nb remaining: 36



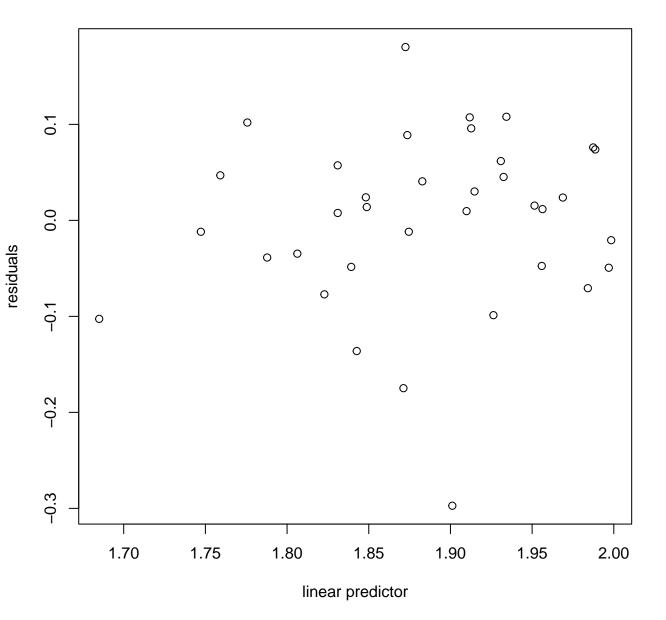




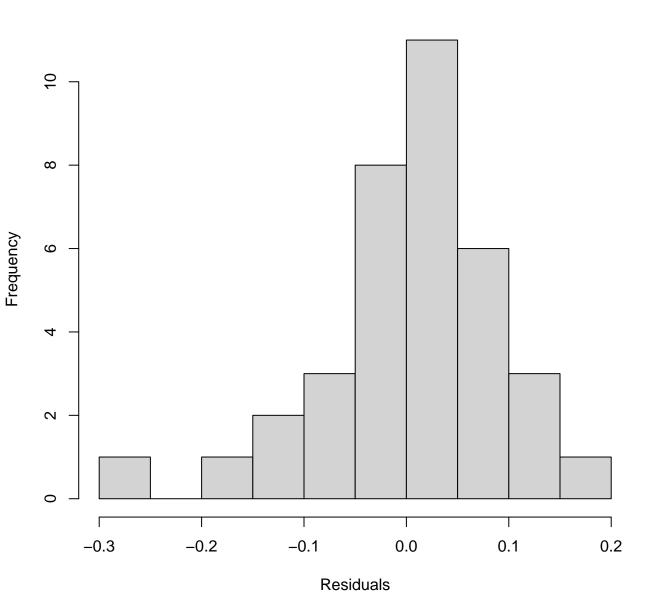




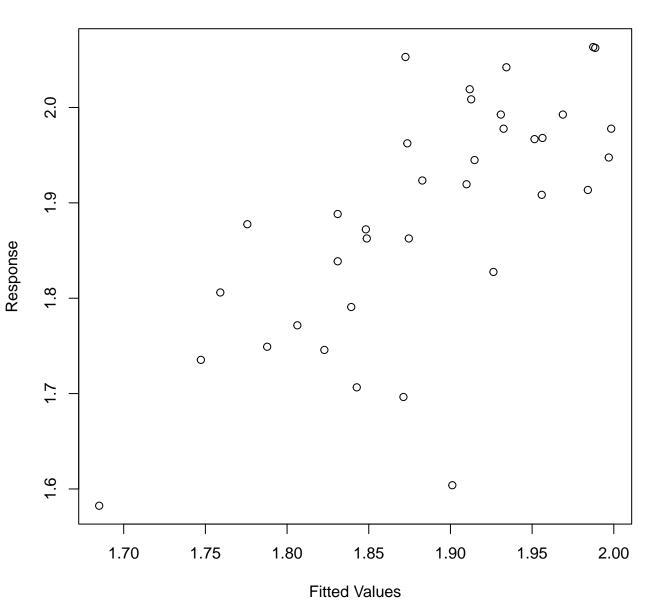
## Resids vs. linear pred.



# **Histogram of residuals**



#### Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 12 iterations. Gradient range [-6.829766e-06,4.496022e-07] (score -30.98978 & scale 0.009441773).

Hessian positive definite, eigenvalue range [3.872079e-06,18.14705]. Model rank = 11 / 11

Basis dimension (k) checking results. Low p-value (k-index<1) may

indicate that k is too low, especially if edf is close to k'.

k' edf k-index p-value

s(bites\_of\_yesterday) 3.00 1.00 1.09 0.59 s(cumul\_bites\_7\_previous\_days) 3.00 1.00 1.00 0.44 s(ID) 4.00 2.36 NA NA

#### # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased SE	Tolerance	Tolerance 95% CI
s(bites_of_yesterday, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]
s(cumul_bites_7_previous_days, k	= 4)	1.11	[1.00,	3.31]	1.05	0.90	[0.30, 1.00]

```
Family: gaussian
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
   k = 4) + s(ID, bs = "re", k = 2)
Parametric coefficients:
```

Estimate Std. Error t value Pr(>|t|) (Intercept) 1.88505 0.03522 53.53 <2e-16 \*\*\*

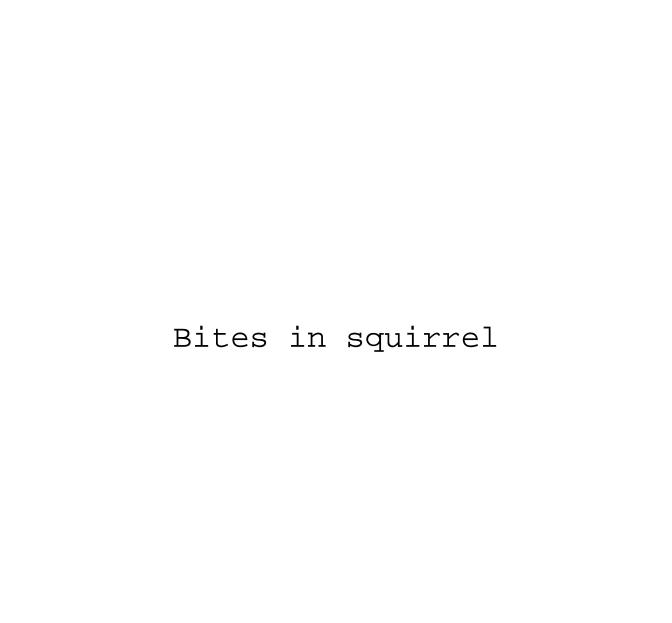
```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 0.1 ... 1
Approximate significance of smooth terms:
```

edf Ref.df F p-value s(bites\_of\_yesterday) 1.000 1 2.000 0.16727 s(cumul\_bites\_7\_previous\_days) 1.000 1 8.954 0.00539 \*\* 2.361 3 4.580 0.00282 \*\* s(ID)

```
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ....... 1
```

R-sg.(adj) = 0.403 Deviance explained = 47.8% -ML = -30.99 Scale est. = 0.0094418 n = 36

AICc [1] -53.93073



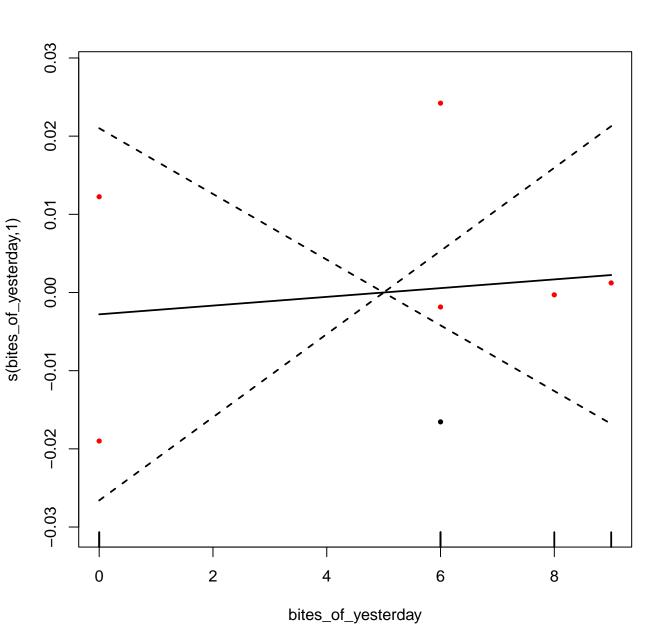
Nb excluded (LOD): 20 Nb remaining: 0

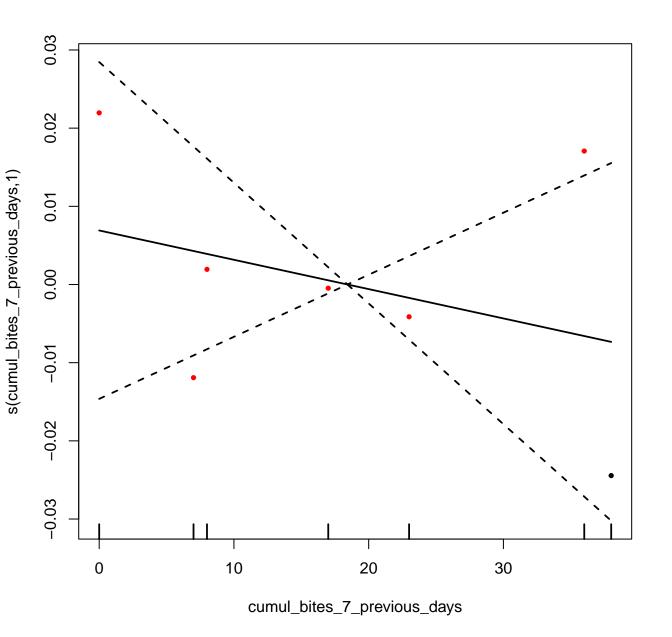
TGFbeta ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



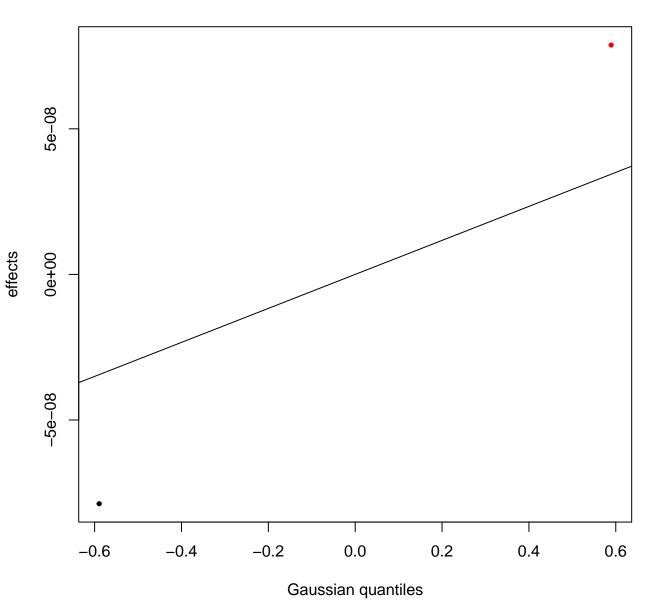


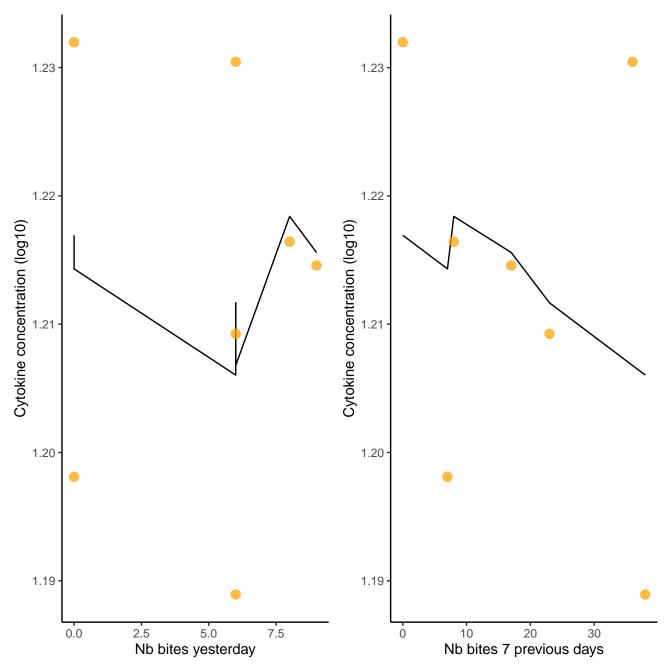
Nb excluded (LOD): 29 Nb remaining: 7

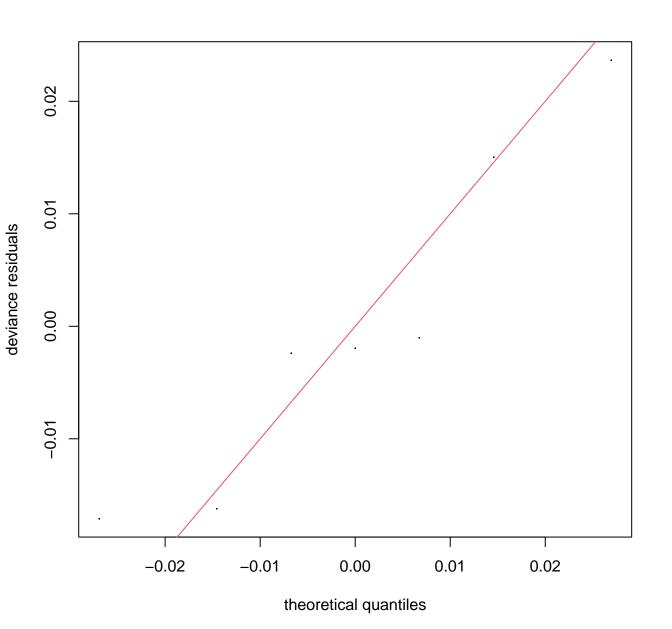




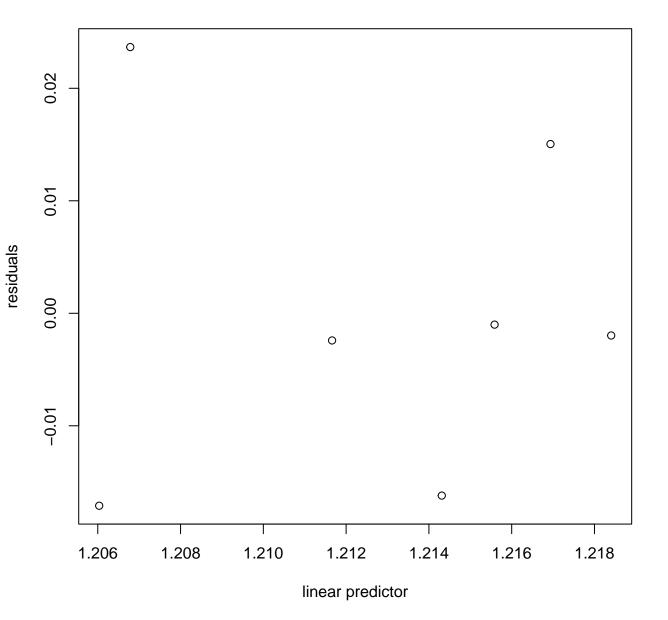




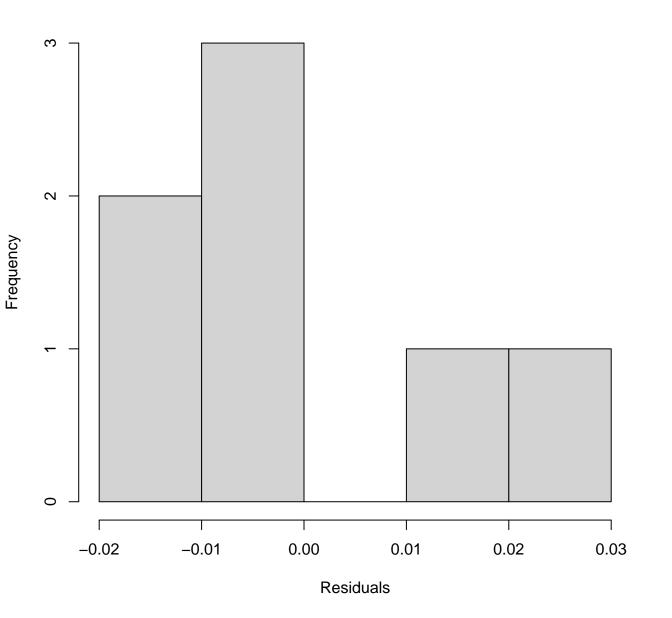




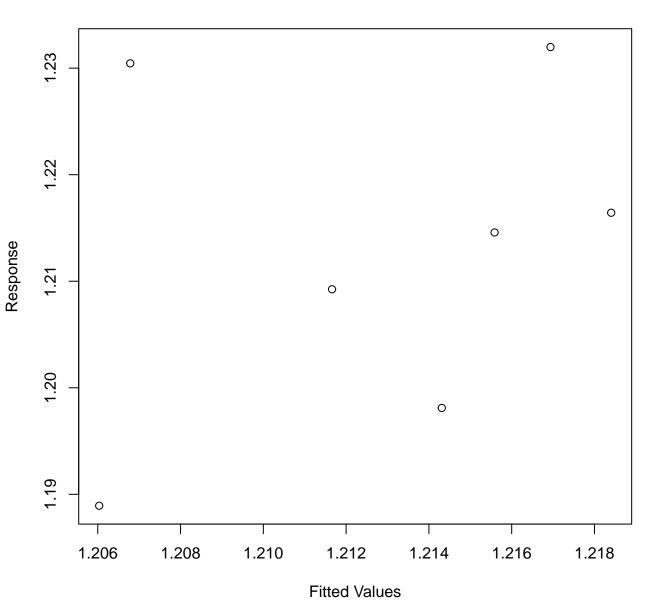
## Resids vs. linear pred.



## Histogram of residuals



## Response vs. Fitted Values



Method: ML Optimizer: outer newton

full convergence after 12 iterations. Gradient range [-9.140962e-06,7.075497e-06]

(score -19.99919 & scale 0.0003380485). Hessian positive definite, eigenvalue range [2.142904e-07,3.499993].

Model rank = 9 / 9

Basis dimension (k) checking results. Low p-value (k-index<1) may indicate that k is too low, especially if edf is close to k'.

s(ID)

s(bites\_of\_yesterday)

k'

edf k-index p-value 3.00e+00 1.00e+00

1.09

0.52

0.83

NA

s(cumul\_bites\_7\_previous\_days) 3.00e+00 1.00e+00

1.52 2.00e+00 4.89e-06

NA

## # Check for Multicollinearity

Low Correlation

	Term	VIF	VIF	95% CI	Increased S	E Tolerance	Tolerance 95%	CI
s(bites_of_yesterday,	k = 4)	1.28	[1.10]	1.76]	1.1	3 0.78	[0.57, 0.	91]
s(cumul bites 7 previous days.	k = 4	1.28	[1.10.	1.761	1.1	3 0.78	[0.57.0.	911

```
Link function: identity
Formula:
log10(value) ~ s(bites_of_yesterday, k = 4) + s(cumul_bites_7_previous_days,
    k = 4) + s(ID, bs = "re", k = 2)
```

```
Parametric coefficients:
Estimate Std. Error t value Pr(>|t|)
```

Family: gaussian

```
(Intercept) 1.212817  0.006949  174.5 6.47e-09 ***
---
Signif. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ...... 1
```

R-sq.(adj) = -0.358 Deviance explained = 9.49% -ML = -19.999 Scale est. = 0.00033805 n = 7

```
Approximate significance of smooth terms:

edf Ref.df F p-value
s(bites_of_yesterday) 1.000e+00 1 0.055 0.826
s(cumul_bites_7_previous_days) 1.000e+00 1 0.412 0.556
s(ID) 4.894e-06 1 0.000 0.271
```

AICc [1] -11.99819



Nb excluded (LOD): 20 Nb remaining: 0

TNF.alpha ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile





Nb remaining: 0

Nb excluded (LOD): 36

VEGF ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile



Nb excluded (LOD): 20 Nb remaining: 0

VEGF ERROR : Pas assez de données (non-NA) pour faire quoi que ce soit d'utile