



## **Are population pharmacokinetic and/or pharmacodynamic models adequately evaluated? A survey of the literature from 2002 to 2004.**

Karl Brendel, Céline Dartois, Emmanuelle Comets, Annabelle Lemenuel-Diot, Christian Laveille, Brigitte Tranchand, Pascal Girard, Céline M. Laffont, France Mentré

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# **Data Abstraction Form for population PK/PD publications**

## **MODEL EVALUATION**

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## ARTICLE IDENTIFICATION

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**DATE OF PUBLICATION (YEAR)**.....

**TITLE**.....

.....

.....

**FIRST AUTHOR**.....

## I. BASIC INTERNAL

### Goodness of fit

#### For the PK, PD study or the PKPD study

Were graphs plotted for basic evaluation?

☐ Yes ☐ No

Which graphs are shown in the paper?

☐ None

(OBS: Observations, PRED: Population Prediction, IPRED: Individual Prediction, WRES: Weighted residuals of population, IWRES: Weighted residuals of individual, COV:

Covariates, RES: Difference between PRED and OBS,  $\eta_i$ : interindividual random effects,

$\theta_i$ : individual parameters, "X": can be time or dose, Distribution: boxplot, histogram, or QQ plot)

☐ OBS vs X with PRED

☐ PRED vs "X"

☐ PRED vs OBS

☐ RES vs PRED

☐ WRES vs "X"

☐ WRES vs PRED

☐ |WRES| vs PRED

☐ Distribution of RES or WRES

☐ Distribution of  $\theta_i$

☐ Others: .....

☐ IPRED vs "X"

☐ IPRED vs OBS

☐ IWRES vs "X"

☐ IWRES vs IPRED

☐ |IWRES| vs IPRED

☐ Distribution of  $\eta_i$

**Uncertainty on parameters****For the PK study**

- ☐ SE or CV or CI on fixed effects
- ☐ SE or CV or CI on variance of random effects

SE or CV or CI are obtained by:

- ☐ Fisher information matrix
- ☐ Profile likelihood
- ☐ Bootstrap

Which type of bootstrap has been performed?

- ☐ On individuals (wild bootstrap)
- ☐ Other, define: .....

Number of bootstrap samples: .....

- ☐ SD of posterior distribution of the parameters (Bayesian methods)
- ☐ Graphs of posterior distribution of the parameters (Bayesian methods)
- ☐ Correlation between estimates were reported
- ☐ Others: .....

**For the PD study (or PKPD study)**

- ☐ SE or CV or CI on fixed effects
- ☐ SE or CV or CI on variance of random effects

SE or CV or CI are obtained by:

- ☐ Fisher information matrix
- ☐ Profile likelihood
- ☐ Bootstrap

Which type of bootstrap has been performed?

- ☐ On individuals (wild bootstrap)
- ☐ Other, define: .....

Number of bootstrap samples: .....

- ☐ SD of posterior distribution of the parameters (Bayesian methods)
- ☐ Graphs of posterior distribution of the parameters (Bayesian methods)
- ☐ Correlation between estimates were reported
- ☐ Others: .....

**Evaluation of covariate model****For the PK study**

**Were graphs plotted for evaluation of covariates model?** ☐ Yes ☐ No

**Which graphs are shown in the paper?** ☐ None

(WRES: Weighted residuals of population, IWRES: Weighted residuals of individual, COV: Covariates, RES: Difference between PRED and OBS,  $\eta_i$ : interindividual random effects,  $\theta_i$ : individual parameters,  $\theta$ : population parameters)

☐ WRES vs COV

☐  $\eta_i$  vs COV

☐ RES vs COV

☐  $\theta_i$  vs COV

☐ Other, define: .....

☐ Randomisation test

Number of simulations: .....

☐ Others, define: .....

**For the PD study (or PKPD study)**

**Were graphs plotted for evaluation of covariates model?** ☐ Yes ☐ No

**Which graphs are shown in the paper?** ☐ None

(WRES: Weighted residuals of population, IWRES: Weighted residuals of individual, COV: Covariates, RES: Difference between PRED and OBS,  $\eta_i$ : interindividual random effects,  $\theta_i$ : individual parameters )

☐ WRES vs COV

☐  $\eta_i$  vs COV

☐ RES vs COV

☐  $\theta_i$  vs COV

☐ Other, define: .....

☐ Randomisation test

Number of simulations: .....

☐ Others, define: .....

**Model sensitivity****For the PK study**

- ☐ Sensitivity analysis to data outliers
  - ☐ Define method: .....
- ☐ Sensitivity analysis to individual outliers
  - ☐ Define method: .....
- ☐ Sensitivity analysis with respect to some parameters
  - ☐ Define method: .....

**For the PD study (or PKPD study)**

- ☐ Sensitivity analysis to data outliers
  - ☐ Define method: .....
- ☐ Sensitivity analysis to individual outliers
  - ☐ Define method: .....
- ☐ Sensitivity analysis with respect to some parameters
  - ☐ Define method: .....



## II. ADVANCED INTERNAL

### Data splitting

#### For the PK study

☐ Yes ☐ No

#### Data (Validation dataset)

Selection

☐ Not reported

☐ Within patient

☐ Between patient

☐ Sequential

☐ Randomisation

☐ Stratification on covariates

☐ Covariate distribution compared between validation and building datasets

Number of subjects (PK): .....

☐ Not reported

Number of observations (PK): .....

☐ Not reported

#### Final Data

Was the data reanalyzed by pooling building and validation datasets ? ☐ Yes ☐ No

#### For the PD study (or PKPD study)

☐ Yes ☐ No

#### Data (Validation dataset)

Selection

☐ Not reported

☐ Within patient

☐ Between patient

☐ Sequential

☐ Randomisation

☐ Stratification on covariates

☐ Covariate distribution compared between validation and building datasets

Number of subjects (PK): .....

☐ Not reported

Number of observations (PK): .....

☐ Not reported

#### Final dataset

Was the data reanalyzed by pooling building and validation datasets ? ☐ Yes ☐ No

**Bootstrap****For the PK study**Yes ☐ No ☐

Which type of bootstrap has been performed?

☐ Not reported☐ On individuals (wild bootstrap)☐ Stratification on covariates☐ Others, define: .....

Number of bootstrap samples: .....

**For the PD study (or PKPD study)**Yes ☐ No ☐

Which type of bootstrap has been performed?

☐ Not reported☐ On individuals (wild bootstrap)☐ Stratification on covariates☐ Others, define: .....

Number of bootstrap samples: .....

**Cross-validation****For the PK study**Yes ☐ No ☐

How cross-validation was performed?

☐ Not reported☐ Stratification on covariates☐ Others, define: .....

Number of groups: .....

**For the PD study (or PKPD study)**Yes ☐ No ☐

How cross-validation was performed?

☐ Not reported☐ Stratification on covariates☐ Others, define: .....

Number of groups: .....

**Monte Carlo simulation of datasets****For the PK study**Yes ☐ No ☐

Number of datasets .....

☐ Not reported

Was design identical to original dataset?

Yes ☐ No ☐**If no,** Number of subjects: .....

Other differences, define: .....

How simulations were performed?

☐ Not reported

With uncertainty on population parameters?

Yes ☐ No ☐

If yes :

☐ SE only☐ Full covariance matrix☐ Using bootstrap techniques

Distribution for the population parameter:

☐ Multivariate normal or lognormal☐ Full posterior☐ Other, define: .....

Which Software has been used ?

☐ NONMEM☐ SAS☐ R/S☐ TS2☐ Not reported☐ Other, define: .....

Were simulated datasets fitted?

Yes ☐ No ☐**For the PD study (or PKPD study)**Yes ☐ No ☐

Number of datasets .....

☐ Not reported

Was design identical to original dataset?

Yes ☐ No ☐**If no,** Number of subjects: .....

Other differences, define: .....

How simulations were performed?	<input type="checkbox"/> Not reported
With uncertainty on population parameters?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes :	
<input type="checkbox"/> SE only	
<input type="checkbox"/> Full covariance matrix	
<input type="checkbox"/> Using bootstrap techniques	
Distribution for the population parameter:	
<input type="checkbox"/> Multivariate normal or lognormal	
<input type="checkbox"/> Full posterior	
<input type="checkbox"/> Other, define: .....	
Which Software has been used ?	
<input type="checkbox"/> NONMEM	<input type="checkbox"/> SAS
<input type="checkbox"/> R/S	<input type="checkbox"/> TS2
<input type="checkbox"/> Other, define: .....	<input type="checkbox"/> Not reported
Were simulated datasets fitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>

## Other methods

### For the PK study

Denomination: .....

Purpose: .....

Method steps: .....

### For the PD study

Denomination: .....

Purpose: .....

Method steps: .....

.....

**Metrics****For the PK study****Prediction of validation dataset obtained:**☐ Not reported☐ with the model based on the building dataset without refitting☐ without covariate☐ with covariates☐ with the model based on the building dataset and refitting☐ without covariate☐ with covariates☐ without a model (Non Compartmental Analysis, individual parameters)☐ Other, define: .....**Metrics on observations (concentrations)**

Types of metrics

☐ Not reported☐ Prediction errors PE (*residuals RES*)☐ Square prediction errors MSE or Root mean square prediction errors RMSE☐ Absolute prediction errors APE☐ Standardised prediction errors SPE (*weighted residuals WRES*)☐ SPE where E(C) and SD(C) obtained with Monte carlo simulations☐ Other metric : .....

Tests performed on metrics

☐ Yes☐ No☐ Define : .....

Graphs

☐ Yes☐ No☐ Define : .....

<b>On individual statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta_i$ <input type="checkbox"/> $\eta_i$ <input type="checkbox"/> All $i$	
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC $_i$ <input type="checkbox"/> Clearance $_i$	
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
<b>On population statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta$ <input type="checkbox"/> Variability	
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC <input type="checkbox"/> Clearance	
	<input type="checkbox"/> mean <input type="checkbox"/> quartile	
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		

**For the PD study (or PKPD study)****Prediction of validation dataset obtained:**☐ Not reported

- ☐ with the model based on the building dataset without refitting
- ☐ without covariate      ☐ with covariates
- ☐ with the model based on the building dataset and refitting
- ☐ without covariate      ☐ with covariates
- ☐ without a model (Non Compartmental Analysis, individual parameters)
- ☐ Other, define: .....

**Metrics on observations (effects)**

Types of metrics

☐ Not reported

- ☐ Prediction errors PE (*residuals RES*)
- ☐ Square prediction errors MSE or Root mean square prediction errors RMSE
- ☐ Absolute prediction errors APE
- ☐ Standardised prediction errors SPE (*weighted residuals WRES*)
- ☐ SPE where E(C) and SD(C) obtained with Monte carlo simulations
- ☐ Other metric : .....

Tests performed on metrics

☐ Yes☐ No☐ Define : .....

Graphs

☐ Yes☐ No☐ Define : .....

<b>On individual statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta_i$ <input type="checkbox"/> $\eta_i$ <input type="checkbox"/> All $i$	
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC(effet) <sub>i</sub> <input type="checkbox"/> EC50/ED50 <sub>i</sub>	
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
<b>On population statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta$ <input type="checkbox"/> Variability	
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC(effet) <input type="checkbox"/> EC50/ED50	
	<input type="checkbox"/> mean <input type="checkbox"/> quartile	
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		



### III. EXTERNAL

<b><u>For the PK study</u></b>		<input type="checkbox"/> Not reported
<b>Validation dataset (in comparison to building dataset)</b>		
same inclusion criteria	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Not reported
<b>if no, differences in :</b>	<input type="checkbox"/> Pathology <input type="checkbox"/> Age	<input type="checkbox"/> Ethnic group
	<input type="checkbox"/> Other, define: .....	
similar dose regimen	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Not reported
<b>if no, differences in :</b>	<input type="checkbox"/> Dose <input type="checkbox"/> Administration rhythm	
similar sampling scheme	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Not reported
<b>if no:</b>	<input type="checkbox"/> Richer <input type="checkbox"/> More sparse	
Number of subjects (PK): .....		<input type="checkbox"/> Not reported
Number of observations (PK): .....		<input type="checkbox"/> Not reported
<input type="checkbox"/> Covariates compared between the validation and building datasets		
 <b>Final datasets</b>		
Were the data reanalyzed by pooling building and validation datasets ?		
<input type="checkbox"/> yes <input type="checkbox"/> no		
<b><u>For the PD study (or PKPD study)</u></b>		<input type="checkbox"/> Not reported
<b>Validation dataset (in comparison to building dataset)</b>		
same inclusion criteria	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Not reported
<b>if no, differences in :</b>	<input type="checkbox"/> Pathology <input type="checkbox"/> Age	<input type="checkbox"/> Ethnic group
	<input type="checkbox"/> Other, define: .....	
similar dose regimen	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Not reported
<b>if no, differences in :</b>	<input type="checkbox"/> Dose <input type="checkbox"/> Administration rhythm	
similar sampling scheme	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Not reported
<b>if no:</b>	<input type="checkbox"/> Richer <input type="checkbox"/> More sparse	

Number of subjects (PK): .....	<input type="checkbox"/> Not reported
Number of observations (PK): .....	<input type="checkbox"/> Not reported
<input type="checkbox"/> Covariates compared between the validation and building datasets	
<b>Final datasets</b>	
Were the data reanalyzed by pooling building and validation datasets ?	
<input type="checkbox"/> yes	<input type="checkbox"/> no

**Monte Carlo simulation of datasets****For the PK study**Yes ☐ No ☐Number of datasets ..... ☐ Not reportedWas design identical to original dataset? Yes ☐ No ☐**If no,** Number of subjects: .....

Other differences, define: .....

How simulations were performed? ☐ Not reportedWith uncertainty on population parameters? Yes ☐ No ☐

If yes :

☐ SE only☐ Full covariance matrix☐ Using bootstrap techniques

Distribution for the population parameter:

☐ Multivariate normal or lognormal☐ Full posterior☐ Other, define: .....

Which Software has been used ?

☐ NONMEM ☐ SAS ☐ R/S ☐ TS2 ☐ Not reported☐ Other, define: .....Were simulated datasets fitted? Yes ☐ No ☐

<b><u>For the PD study (or PKPD study)</u></b>		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Number of datasets .....	<input type="checkbox"/> Not reported		
Was design identical to original dataset?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
If no, Number of subjects: .....			
Other differences, define: .....			
How simulations were performed?		<input type="checkbox"/> Not reported	
With uncertainty on population parameters?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
If yes :			
<input type="checkbox"/> SE only <input type="checkbox"/> Full covariance matrix <input type="checkbox"/> Using bootstrap techniques			
Distribution for the population parameter:			
<input type="checkbox"/> Multivariate normal or lognormal <input type="checkbox"/> Full posterior <input type="checkbox"/> Other, define: .....			
Which Software has been used ?			
<input type="checkbox"/> NONMEM	<input type="checkbox"/> SAS	<input type="checkbox"/> R/S	<input type="checkbox"/> TS2
<input type="checkbox"/> Other, define: .....		<input type="checkbox"/> Not reported	
Were simulated datasets fitted?		Yes <input type="checkbox"/> No <input type="checkbox"/>	

## Other methods

### For the PK study

Denomination: .....

Purpose: .....

Method steps: .....

### For the PD study

Denomination: .....

Purpose: .....

Method steps: .....

**Metrics****For the PK study****Prediction of validation dataset obtained:**☐ Not reported☐ with the model based on the building dataset without refitting☐ without covariate☐ with covariates☐ with the model based on the building dataset and refitting☐ without covariate☐ with covariates☐ without a model (Non Compartmental Analysis, individual parameters)☐ Other, define: .....**Metrics on observations (concentrations)**

Types of metrics

☐ Not reported☐ Prediction errors PE (*residuals RES*)☐ Square prediction errors MSE or Root mean square prediction errors RMSE☐ Absolute prediction errors APE☐ Standardised prediction errors SPE (*weighted residuals WRES*)☐ SPE where E(C) and SD(C) obtained with Monte carlo simulations☐ Other metric : .....

Tests performed on metrics

☐ Yes☐ No☐ Define : .....

Graphs

☐ Yes☐ No☐ Define : .....

<b>On individual statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta_i$ <input type="checkbox"/> $\eta_i$ <input type="checkbox"/> All $i$	
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC $_i$ <input type="checkbox"/> Clearance $_i$	
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Define : .....	
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Define : .....	
<b>On population statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta$ <input type="checkbox"/> Variability	
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC <input type="checkbox"/> Clearance	
	<input type="checkbox"/> mean <input type="checkbox"/> quartile	
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Define : .....	
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Define : .....	

**For the PD study (or PKPD study)****Prediction of validation dataset obtained:**☐ Not reported☐ with the model based on the building dataset without refitting☐ without covariate☐ with covariates☐ with the model based on the building dataset and refitting☐ without covariate☐ with covariates☐ without a model (Non Compartmental Analysis, individual parameters)☐ Other, define: .....**Metrics on observations (effects)**

Types of metrics

☐ Not reported☐ Prediction errors PE (*residuals RES*)☐ Square prediction errors MSE or Root mean square prediction errors RMSE☐ Absolute prediction errors APE☐ Standardised prediction errors SPE (*weighted residuals WRES*)☐ SPE where E(C) and SD(C) obtained with Monte carlo simulations☐ Other metric : .....

Tests performed on metrics

☐ Yes☐ No☐ Define : .....

Graphs

☐ Yes☐ No☐ Define : .....

<b>On individual statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta_i$	<input type="checkbox"/> $\eta_i$ <input type="checkbox"/> All $i$
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC(efet) <sub>i</sub>	<input type="checkbox"/> EC50/ED50 <sub>i</sub>
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
<b>On population statistic or parameter</b>		<input type="checkbox"/> Not reported
Estimated parameters	<input type="checkbox"/> $\theta$	<input type="checkbox"/> Variability
	<input type="checkbox"/> Other, define:.....	
Statistic on	<input type="checkbox"/> AUC(efet)	<input type="checkbox"/> EC50/ED50
	<input type="checkbox"/> mean	<input type="checkbox"/> quartile
	<input type="checkbox"/> Other, define:.....	
Types of metrics		
<input type="checkbox"/> Prediction errors PE		
<input type="checkbox"/> Square prediction errors MSE or Root mean square prediction errors RMSE		
<input type="checkbox"/> Absolute prediction errors APE		
<input type="checkbox"/> Standardised prediction errors SPE		
<input type="checkbox"/> Other metric : .....		
Tests performed on metrics	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		
Graphs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Define : .....		

## SUBJECTIVE SYNTHESIS

**Was there an attempt to evaluate the model?**

☐ No    ☐ Poor    ☐ Good    ☐ Excellent

**Was the choice of the metrics appropriate?**

☐ No    ☐ Poor    ☐ Good    ☐ Excellent

**Was the model evaluated?**

☐ No    ☐ Poor    ☐ Good    ☐ Excellent