

FILE e-1

ONE-WAY SENSITIVITY ANALYSIS FOR CMA AS INITIAL TEST

CMA, at its current effectiveness, would only become the most cost-effective genetic test if it costed \$1,200 or less.

COST-EFFECTIVENESS OF GENETIC TESTS FOR EPILEPSY

Explore how different inputs modify cost-effectiveness

Remember to enter appropriate inputs into the model: proportions should go from 0 to 1 and costs cannot be negative. With inappropriate inputs the model will return inappropriate outputs or errors.

INPUT

COST

Chromosomal microarray
1200

Epilepsy panel
3645

Whole exome sequencing
6750

GENETIC DIAGNOSIS

Chromosomal microarray
0.08

Epilepsy panel
0.23

Whole exome sequencing
0.45

Diagram:

```

graph LR
    A[No genetic testing  
Cost = 0] --> B[No diagnosis  
Proportion diagnosis = 0]
    A --> C[Chromosomal microarray  
Cost = ?]
    C --> D[Diagnosis  
Proportion diagnosis = ?]
    C --> E[No diagnosis  
Proportion diagnosis = ?]
    E --> F[Epilepsy panel  
Cost = ?]
    F --> G[Diagnosis  
Proportion diagnosis = ?]
    F --> H[No diagnosis  
Proportion diagnosis = ?]
    H --> I[Whole exome sequencing  
Cost = ?]
    I --> J[Diagnosis  
Proportion diagnosis = ?]
    I --> K[No diagnosis  
Proportion diagnosis = ?]
  
```

OUTPUT

Cost-effectiveness referenced to common baseline of no genetic testing.

CMA: 15000; WES: 15000; EP: 15847.83

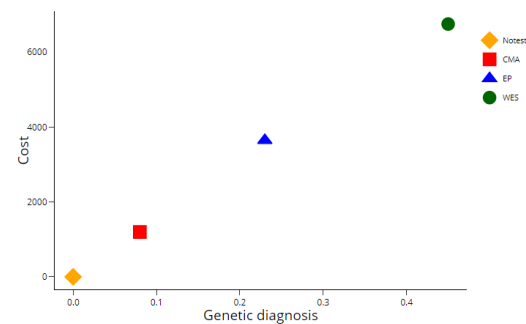
For illustrative purposes only. The most common measure of cost-effectiveness is the ICER referenced to the next most cost-effective alternative as presented in the Cost-Effectiveness Table.

COST-EFFECTIVENESS TABLE

Names	Cost	Effectiveness	IE	IC	ICER
No genetic testing	0.00	0.00	0.00	0.00	NA
Chromosomal microarray	1200.00	0.08	0.08	1200.00	15000.00
Whole exome sequencing	6750.00	0.45	0.37	5550.00	15000.00

*Strategies that are not cost-effective disappear from the table.

Legend: IE: Incremental effectiveness; IC: Incremental cost; ICER: Incremental cost-effectiveness ratio.

COST-EFFECTIVENESS PLOT

CMA, at its current cost, would only become the most cost-effective genetic test if it had a diagnostic yield of 0.1 or more.

Diagnostic yield of genetic tests in epilepsy

COST-EFFECTIVENESS OF GENETIC TESTS FOR EPILEPSY

Explore how different inputs modify cost-effectiveness

Remember to enter appropriate inputs into the model: proportions should go from 0 to 1 and costs cannot be negative. With inappropriate inputs the model will return inappropriate outputs or errors.

INPUT

COST

Chromosomal microarray
1431

Epilepsy panel
3645

Whole exome sequencing
6750

GENETIC DIAGNOSIS

Chromosomal microarray
0.1

Epilepsy panel
0.23

Whole exome sequencing
0.45

Diagram:

```

graph LR
    A[No genetic testing  
Cost = 0] --> B[Proportion diagnosis = 0] --> C[No diagnosis]
    A --> D[Chromosomal microarray  
Cost = ?] --> E[Proportion diagnosis = ?] --> F[Diagnosis]
    A --> G[Epilepsy panel  
Cost = ?] --> H[Proportion diagnosis = ?] --> I[Diagnosis]
    A --> J[Whole exome sequencing  
Cost = ?] --> K[Proportion diagnosis = ?] --> L[Diagnosis]
    
```

OUTPUT

Cost-effectiveness referenced to common baseline of no genetic testing:
CMA: 1431.00; WES: 15000.00; EP: 15847.83

For illustrative purposes only. The most common measure of cost-effectiveness is the ICER referenced to the next most cost-effective alternative as presented in the Cost-Effectiveness Table.

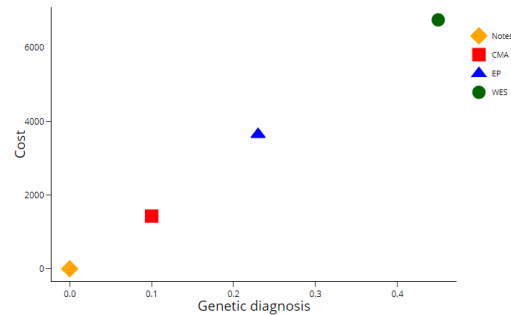
COST-EFFECTIVENESS TABLE

Names	Cost	Effectiveness	IE	IC	ICER
No genetic testing	0.00	0.00	0.00	0.00	NA
Chromosomal microarray	1431.00	0.10	0.10	1431.00	14310.00
Whole exome sequencing	6750.00	0.45	0.35	5319.00	15197.14

*Strategies that are not cost-effective disappear from the table.

Legend: IE: Incremental effectiveness. IC: Incremental cost. ICER: Incremental cost-effectiveness ratio.

COST-EFFECTIVENESS PLOT



Adjusting for potential publication bias in the estimation of the WES effectiveness, CMA at its current effectiveness, would only become the most cost-effective genetic test if it costed \$1,267 or less.

COST-EFFECTIVENESS OF GENETIC TESTS FOR EPILEPSY

Explore how different inputs modify cost-effectiveness

Remember to enter appropriate inputs into the model: proportions should go from 0 to 1 and costs cannot be negative. With inappropriate inputs the model will return inappropriate outputs or errors.

INPUT

COST

Chromosomal microarray
1267

Epilepsy panel
3645

Whole exome sequencing
6750

GENETIC DIAGNOSIS

Chromosomal microarray
0.08

Epilepsy panel
0.23

Whole exome sequencing
0.32

Diagram:

```

graph LR
    A[No genetic testing  
Cost = 0] --> B[Proportion diagnosis = 0] --> C[No diagnosis]
    A --> D[Chromosomal microarray  
Cost = ?] --> E[Proportion diagnosis = ?] --> F[Diagnosis]
    A --> G[Epilepsy panel  
Cost = ?] --> H[Proportion diagnosis = ?] --> I[Diagnosis]
    A --> J[Whole exome sequencing  
Cost = ?] --> K[Proportion diagnosis = ?] --> L[Diagnosis]
    
```

OUTPUT

Cost-effectiveness referenced to common baseline of no genetic testing:
CMA: 15837.5; EP: 15847.83; WES: 21093.75

For illustrative purposes only. The most common measure of cost-effectiveness is the ICER referenced to the next most cost-effective alternative as presented in the Cost-Effectiveness Table.

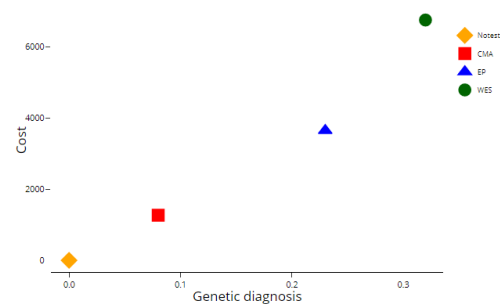
COST-EFFECTIVENESS TABLE

Names	Cost	Effectiveness	IE	IC	ICER
No genetic testing	0.00	0.00	0.00	0.00	NA
Chromosomal microarray	1267.00	0.08	0.08	1267.00	15837.50
Epilepsy panel	3645.00	0.23	0.15	2378.00	15853.33
Whole exome sequencing	6750.00	0.32	0.09	3105.00	34500.00

*Strategies that are not cost-effective disappear from the table.

Legend: IE: Incremental effectiveness. IC: Incremental cost. ICER: Incremental cost-effectiveness ratio.

COST-EFFECTIVENESS PLOT



Adjusting for potential publication bias in the estimation of the WES effectiveness, CMA at its current cost, would only become the most cost-effective genetic test if it had a diagnostic yield of 0.1 or more.