



# Comment gérer les crises?

11ème journée annuelle de la Ligue Francophone Belge contre l'Epilepsie  
Namur, 22 mars 2025

**H.U.B**

HÔPITAL UNIVERSITAIRE  
DE BRUXELLES  
ACADEMISCH ZIEKENHUIS  
BRUSSEL

Hôpital  
Erasmus



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*Centre de Référence pour la prise en charge de l'Epilepsie Réfractaire*  
*Hôpital Universitaire de Bruxelles – Université Libre de Bruxelles*  
*Consortium BRACE (Brussels Rare and Complex Epilepsies)*

## *Financements de recherche*

- ❑ Fonds National pour la Recherche Scientifique (FNRS)
- ❑ Fonds Erasme pour la Recherche Médicale
- ❑ INNOVIRIS

## *Industrie*

- ❑ UCB Pharma
- ❑ Angelini Pharma
- ❑ SAGE Therapeutics (Brexanolone - STATUS trial)
- ❑ Marinus (Ganaxolone – RAISE-2 trial)
- ❑ Bioserenity
- ❑ Natus Training Academy
- ❑ Neuraxpharm



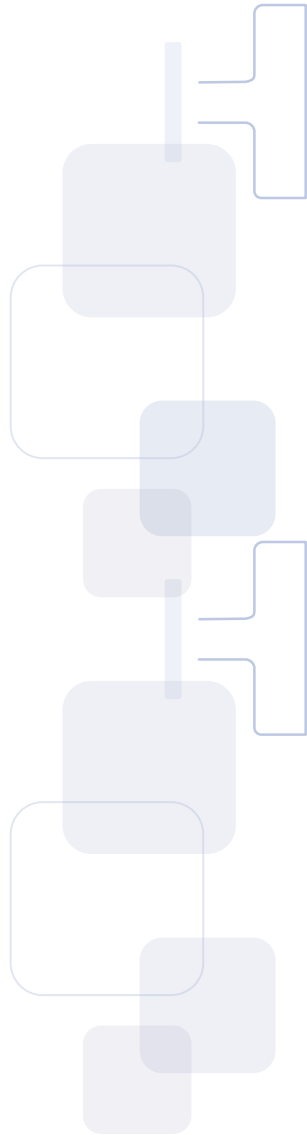
## *Urgences épileptiques*

- Clusters de crises
- Crises prolongées/Etat de mal épileptique

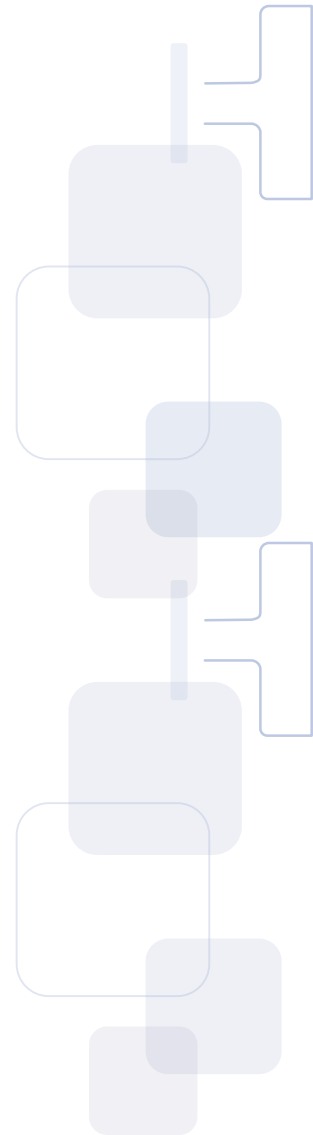
## *Traitement aigu des crises*

- Benzodiazépines
- Voies d'administration

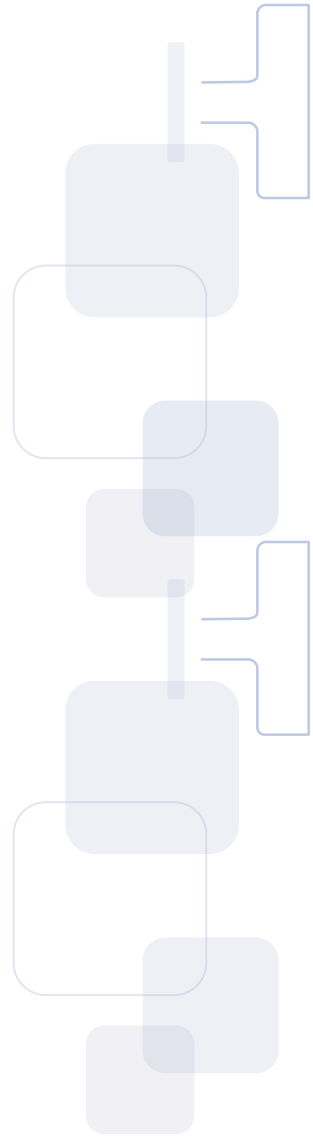
## *Plan d'action de crise*



Crise



Crise



## Crise

< 5-10min



Perte de connaissance  
Confusion post-ictale

Complications:

Traumatiques

Noyades

Brûlures

Cardiaques

Respiratoires

Mortalité/SUDEP

Wirrell EC. *Epilepsia*. 2006;47 Suppl 1:79-86;

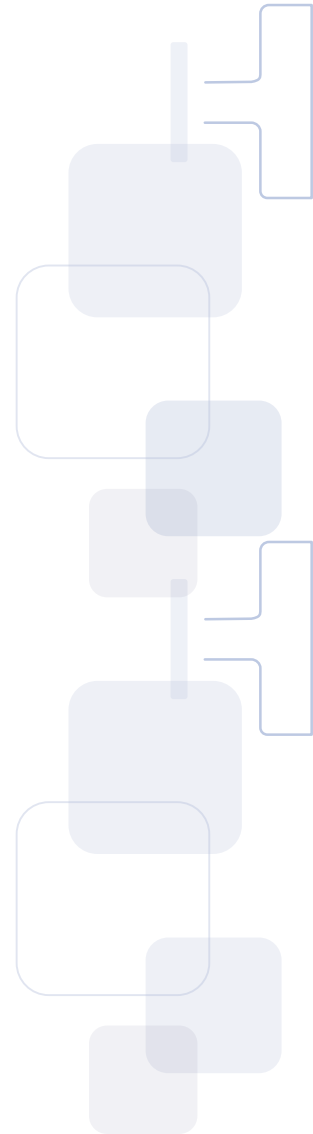
Singh K, et al. *Epilepsia*. 2013;54(6):1083-1091; Oduah MT, Iwanowski P. *Epilepsy Behav*. 2020;111:107185;

Shlobin NA, et al. *Brain Commun*. 2024;6(5):fcae309;

Glaser T, et al. *Curr Neurol Neurosci Rep*. 2024;24(8):303-314.

# Crise prolongée/Etat de mal épileptique

< 5-10min



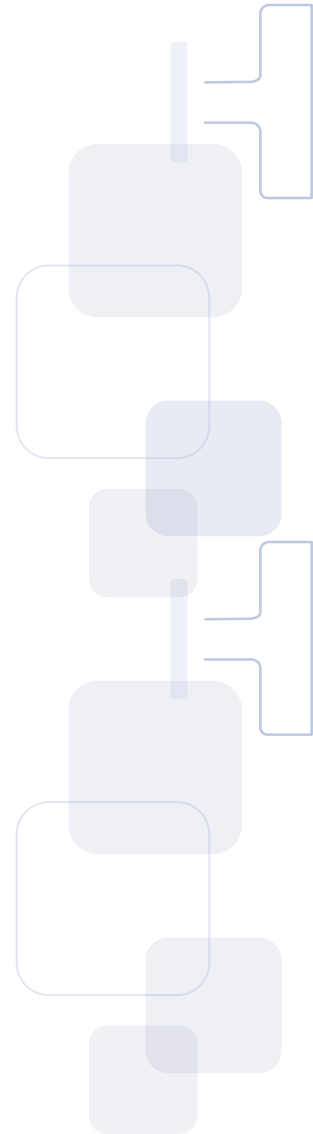
# Crise prolongée/Etat de mal épileptique

> 5-10min

Perte de connaissance  
Lésions cérébrales

Complications:  
Cardiovasculaires  
Respiratoires  
Rénales...

Mortalité/SUDEP





## Définition temporelle variable selon le type de crise (LICE)

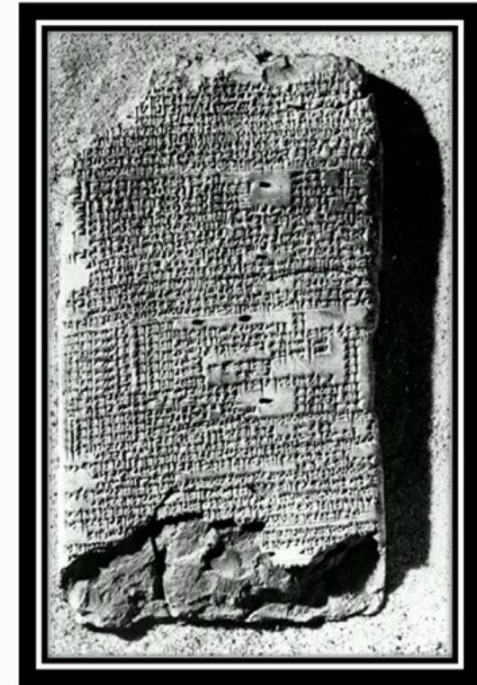
## Prévalence variable (35%)

## Facteurs de risque:

- Épilepsie réfractaire/active
- Epilepsie focale
- Facteurs précipitants (fièvre, cycles menstruels, etc.)

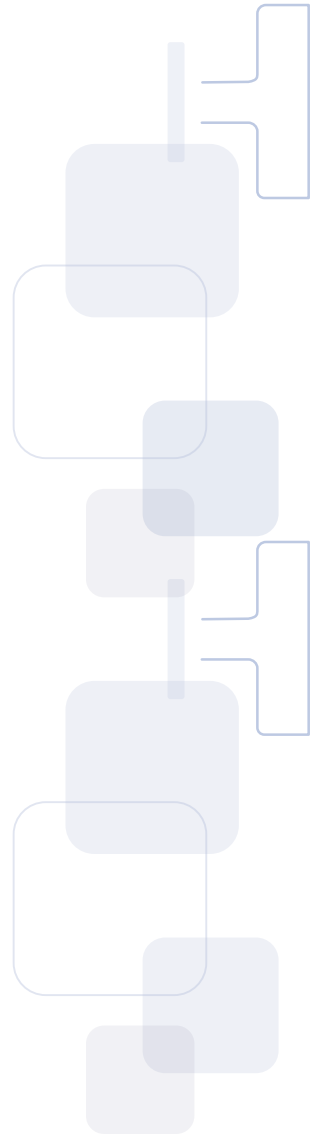
## Mécanismes inconnus

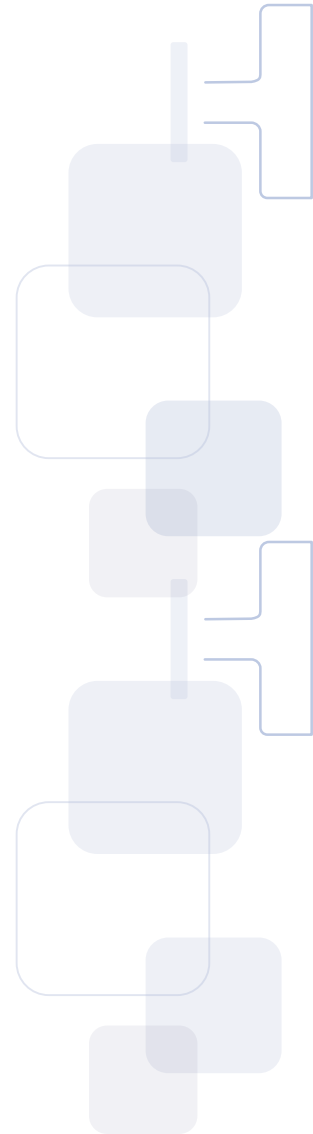
- Faillite des mécanismes d'arrêt de la crise
- Mise en route de mécanismes entretenant la crise

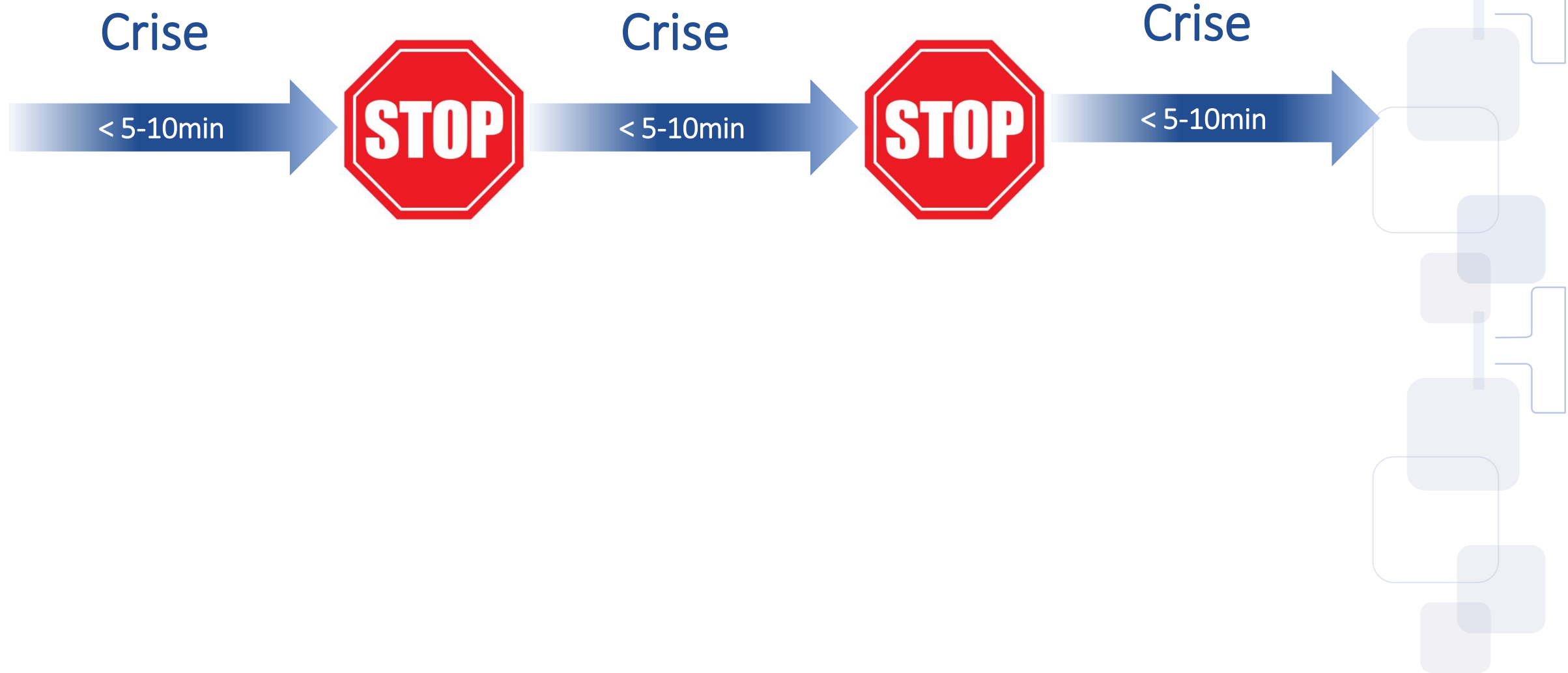


*Trinka E, et al. Epilepsia 2015 Oct;56(10):1515-23; Langenbruch L, et al. J Neurol. 2021;268(12):4816-4823.*

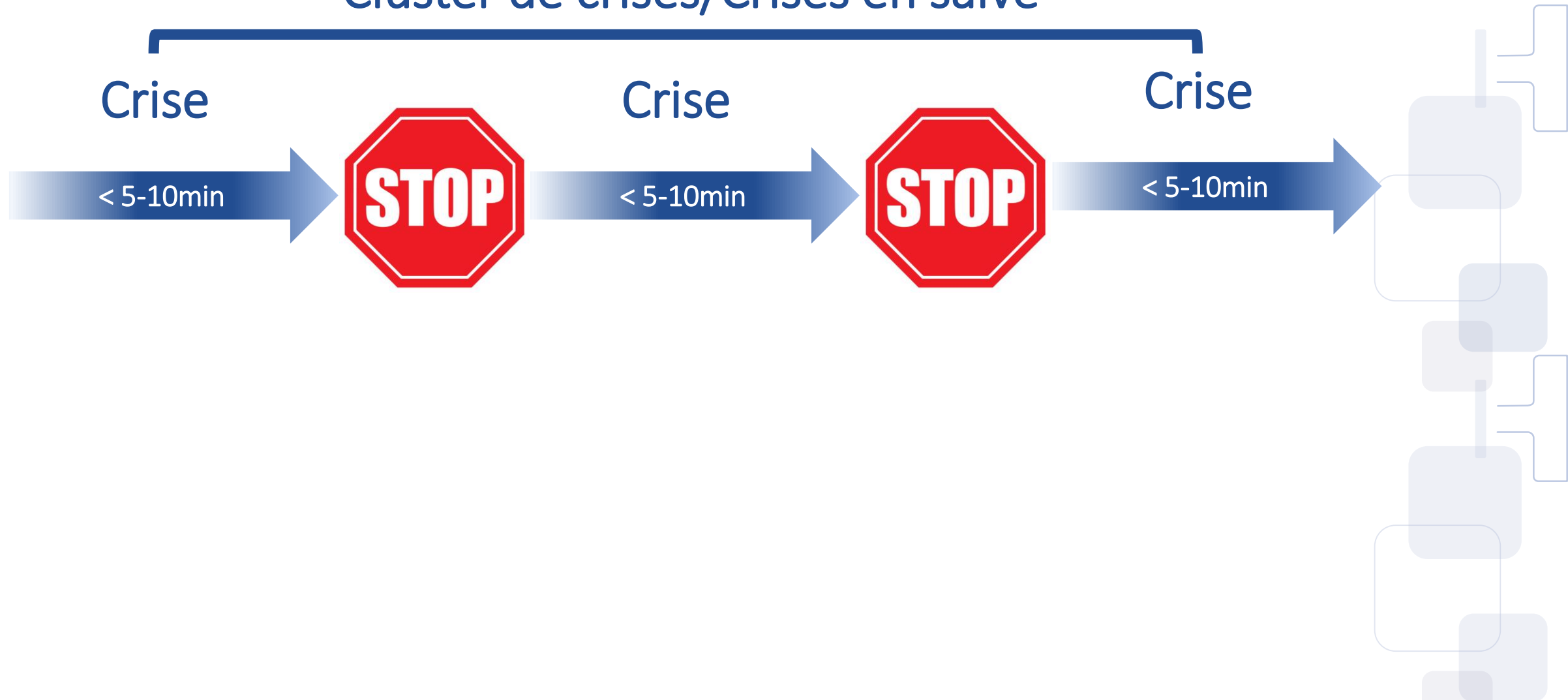
Crise







# Cluster de crises/Crises en salve



Haut SR, Nabbout R. 2022;63 Suppl 1:S6-S13

# Cluster de crises/Crises en salve



Haut SR, Nabbout R. 2022;63 Suppl 1:S6-S13

# Cluster de crises/Crises en salve



Haut SR, Nabbout R. 2022;63 Suppl 1:S6-S13

« Acute repetitive seizures »

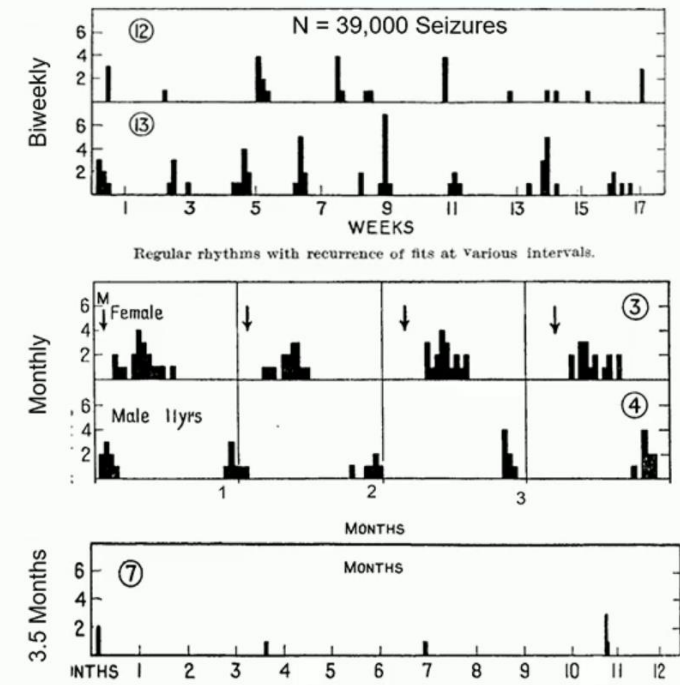
Pas de définition uniforme (nombre, durée, type de crises)

Prévalence variable (13-76%)

Facteurs de risque:

- Épilepsie réfractaire active
- Epilepsie extra-temporale/frontale
- Facteurs précipitants (fièvre, cycles menstruels, etc.)

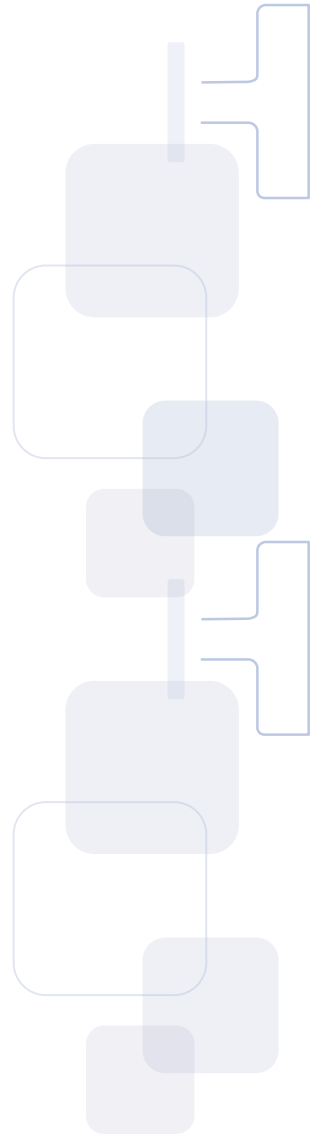
Mécanismes inconnus

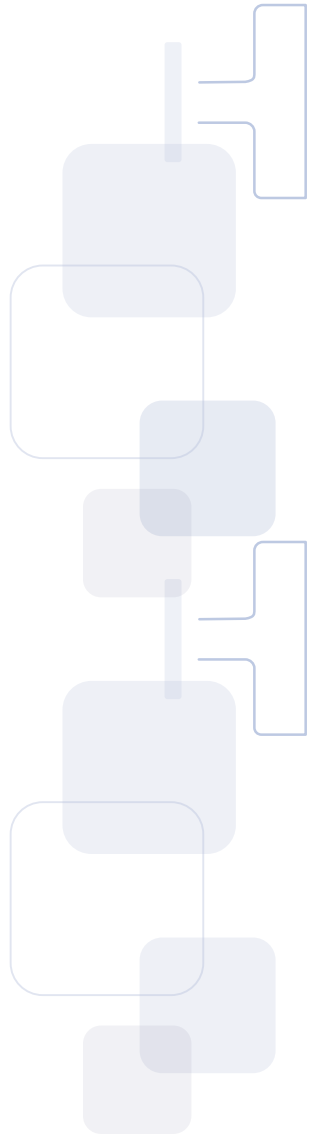
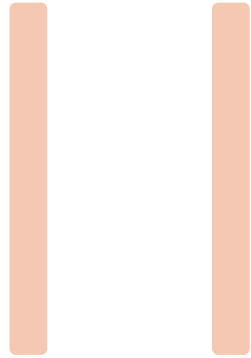


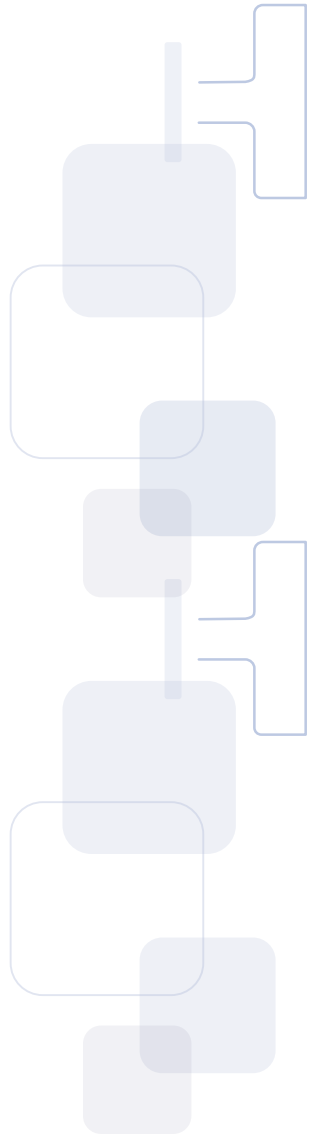
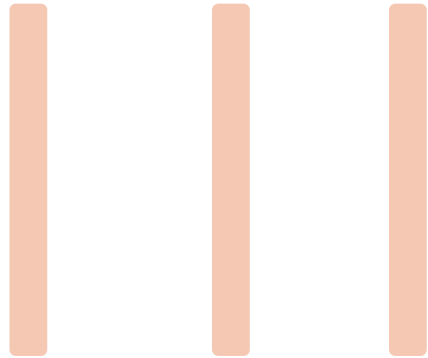


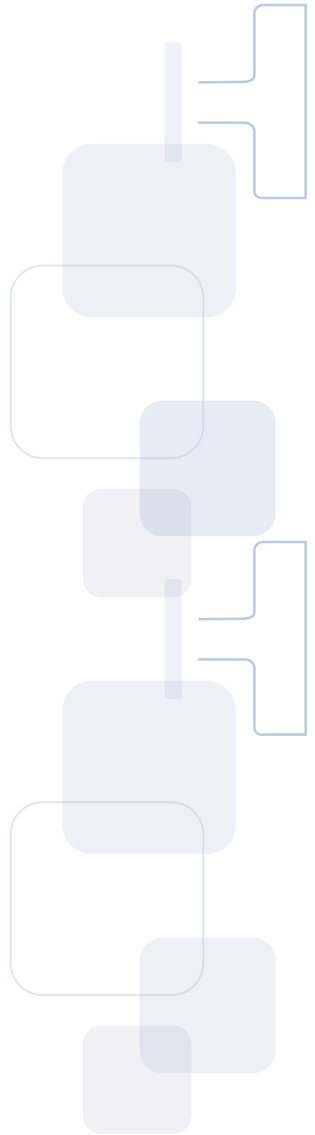
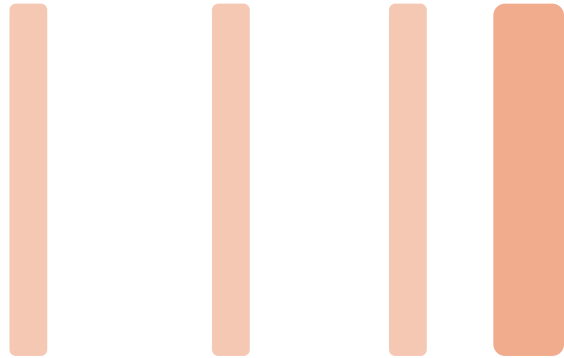


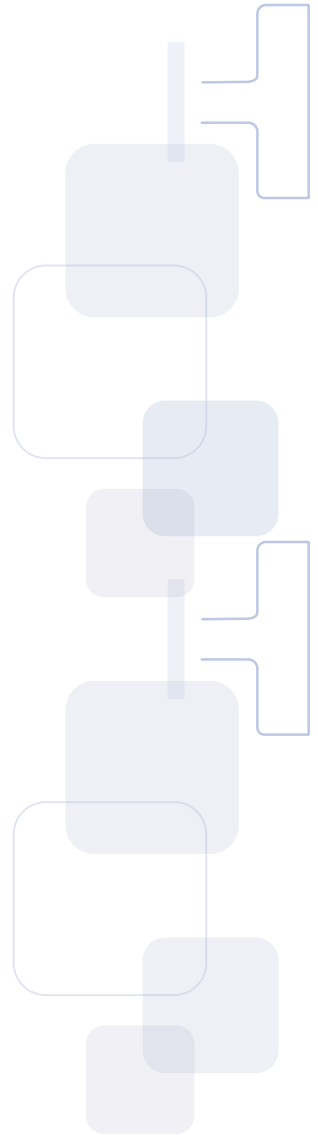
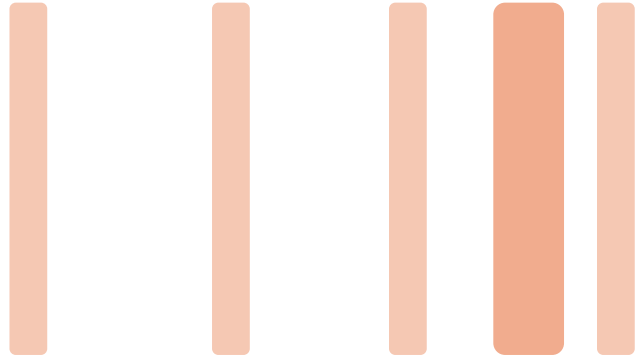
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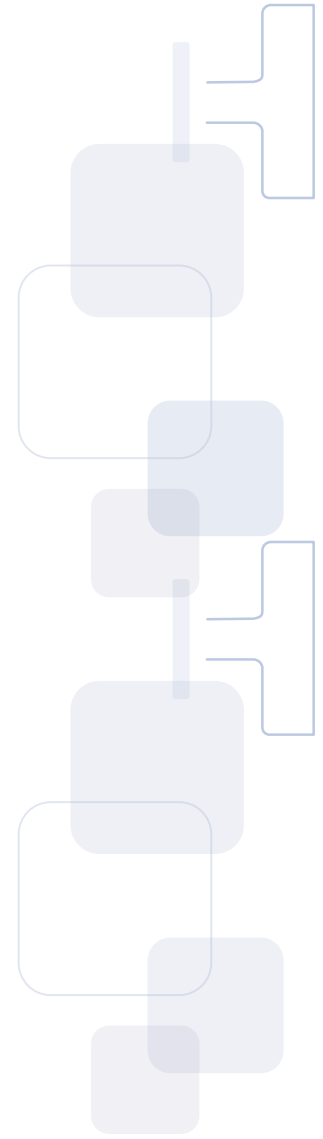
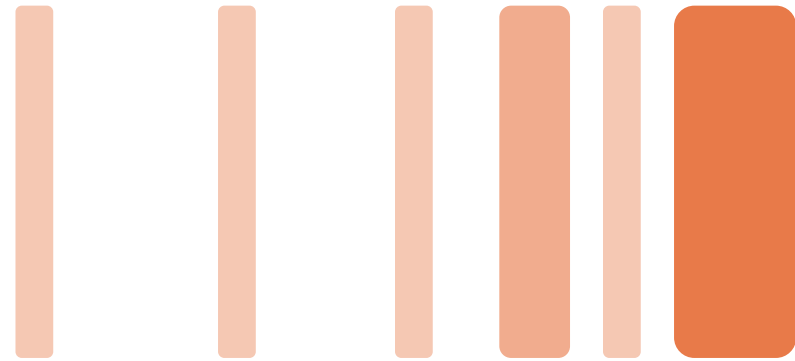


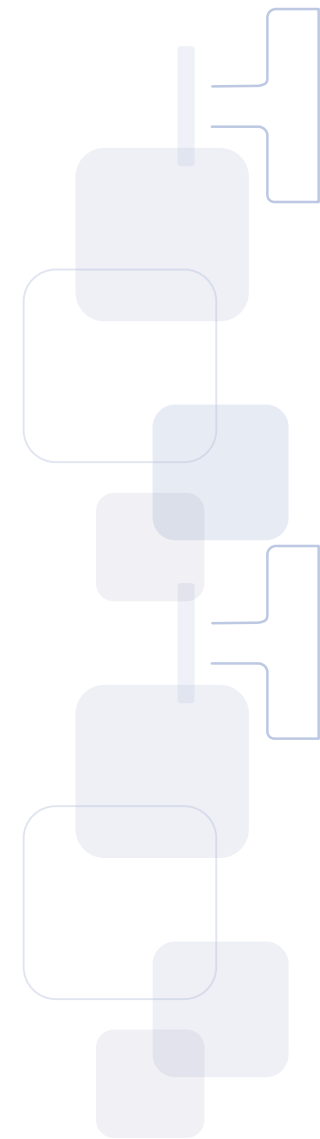


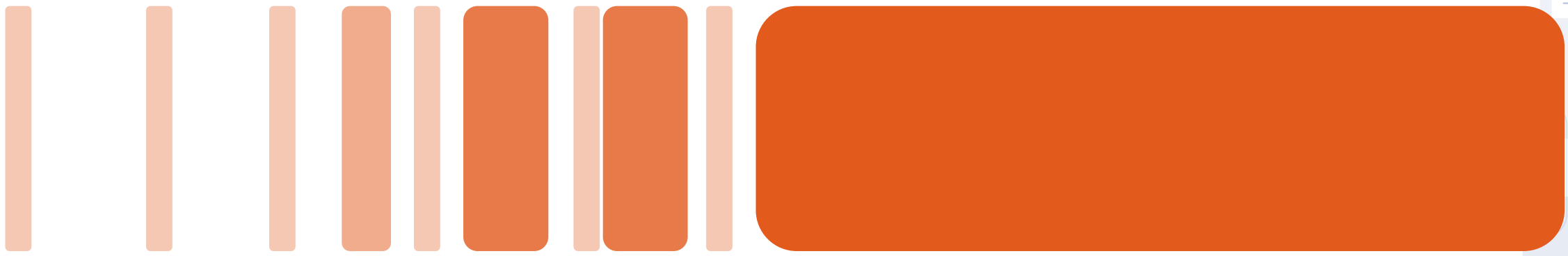




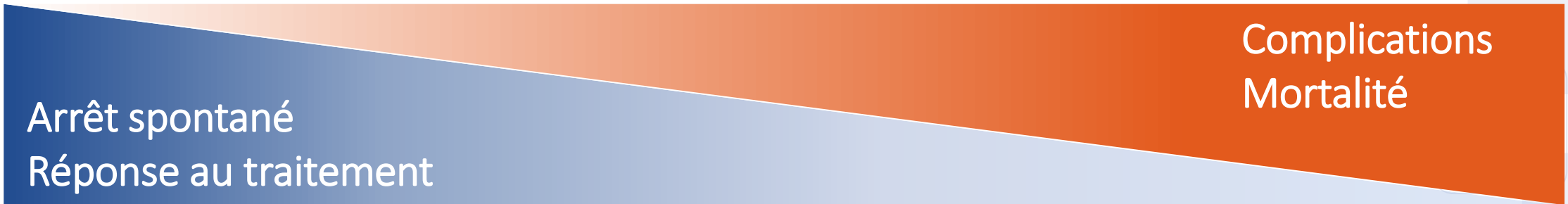
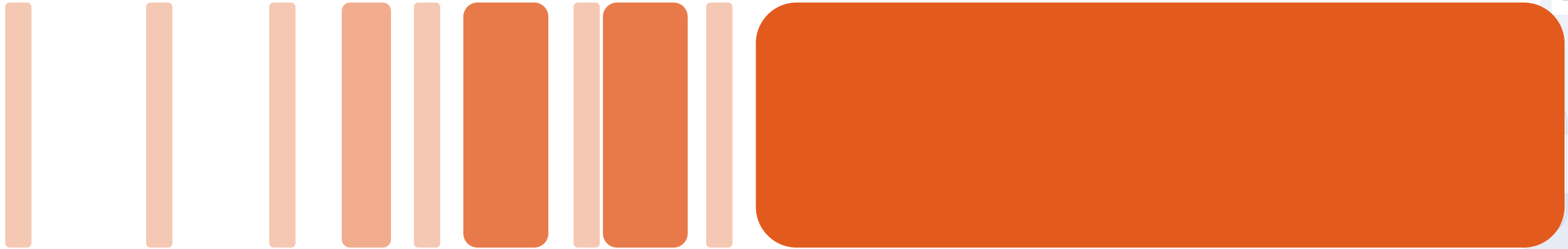








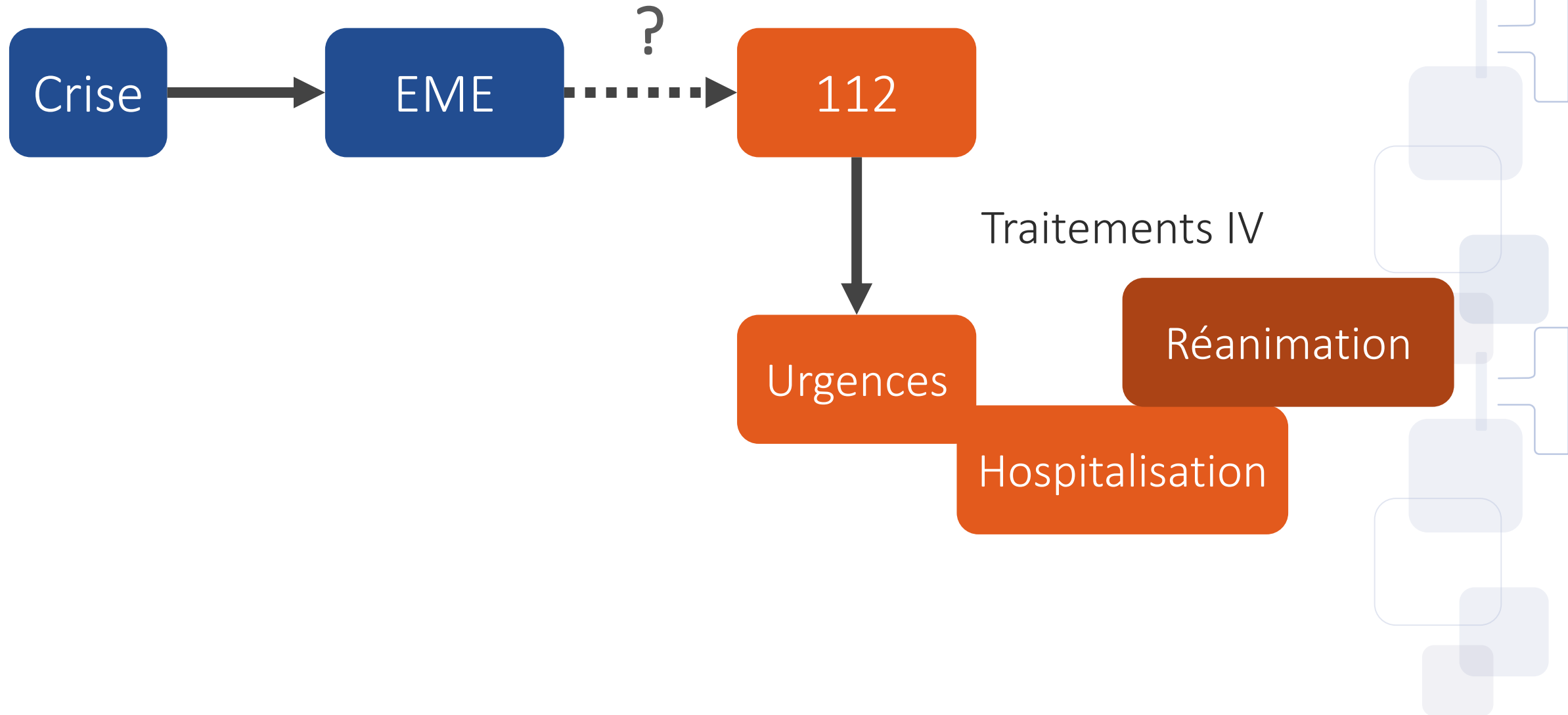




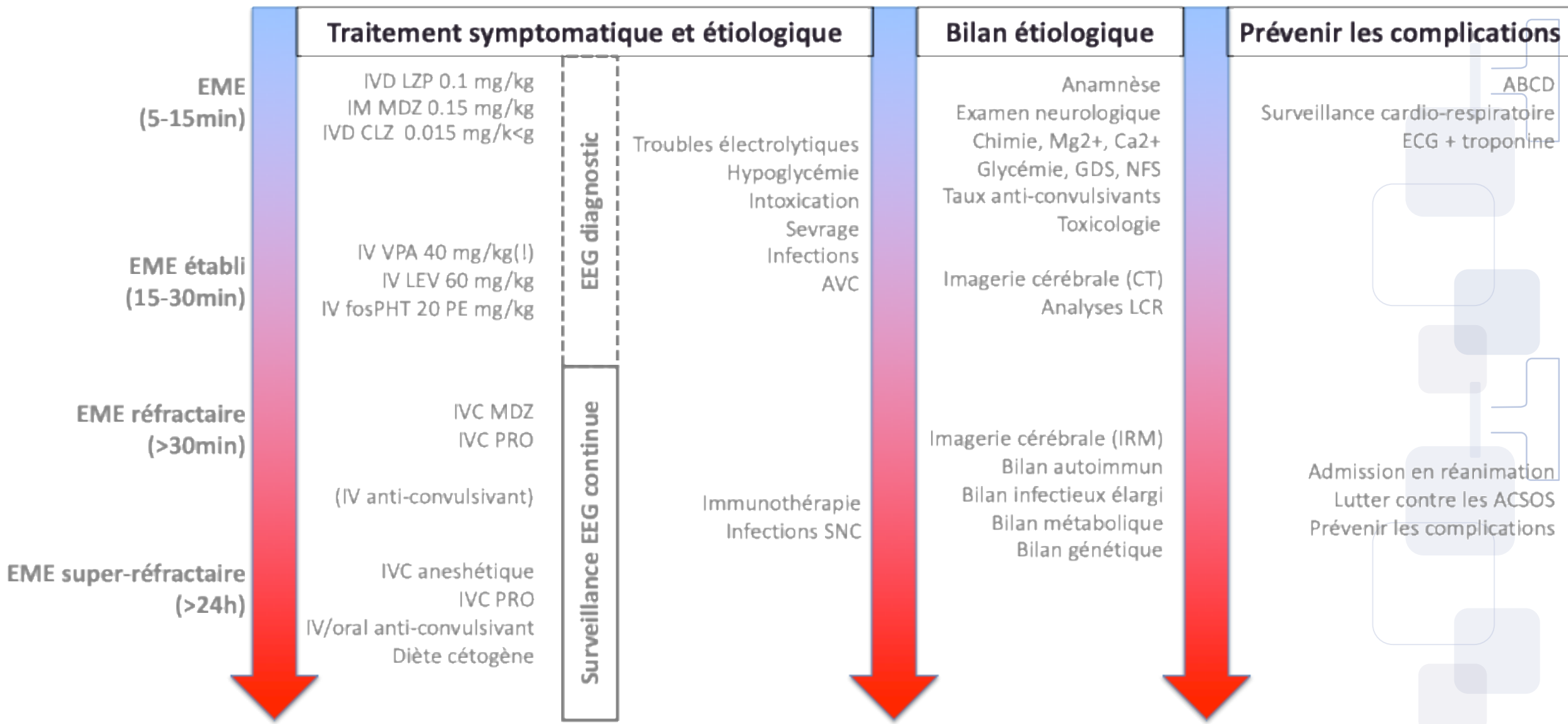
Arrêt spontané  
Réponse au traitement

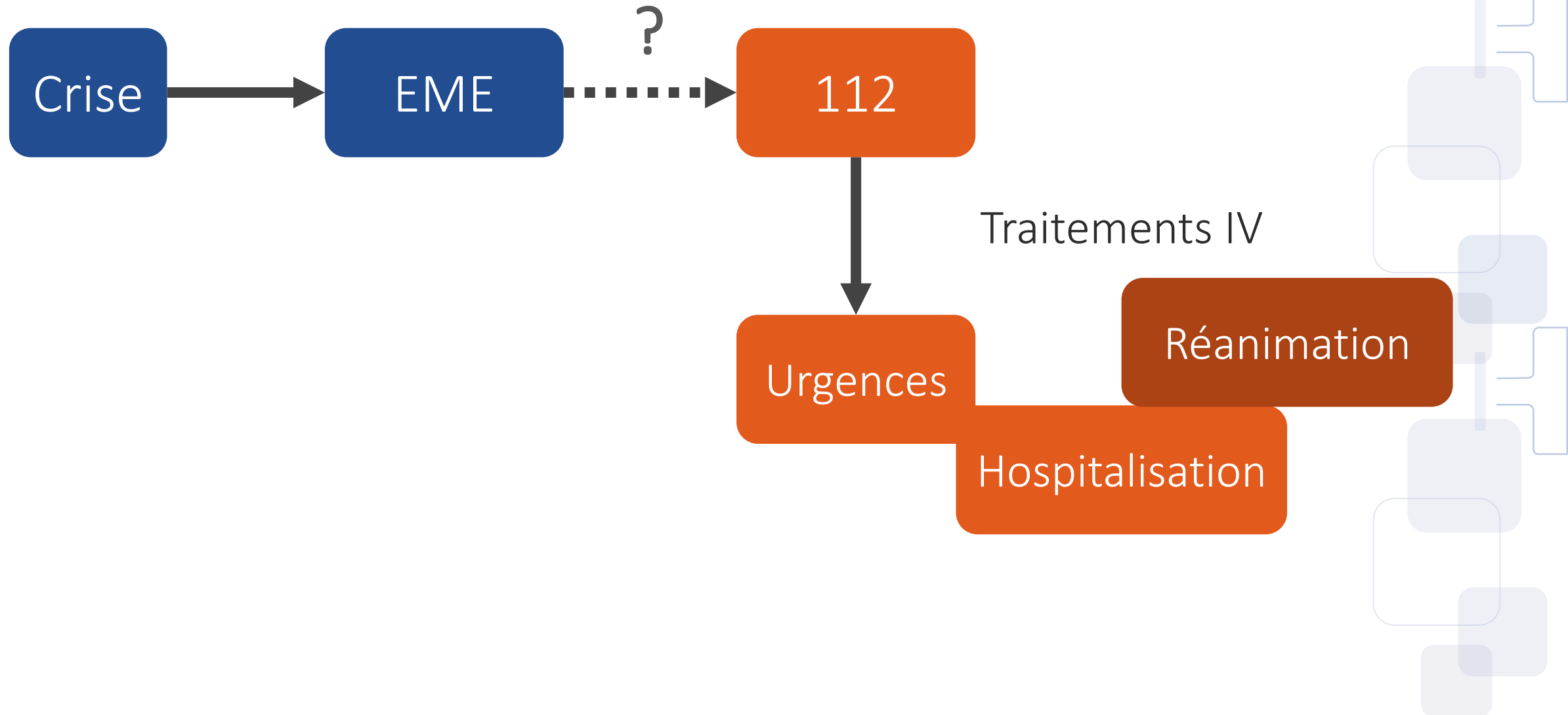
Complications  
Mortalité

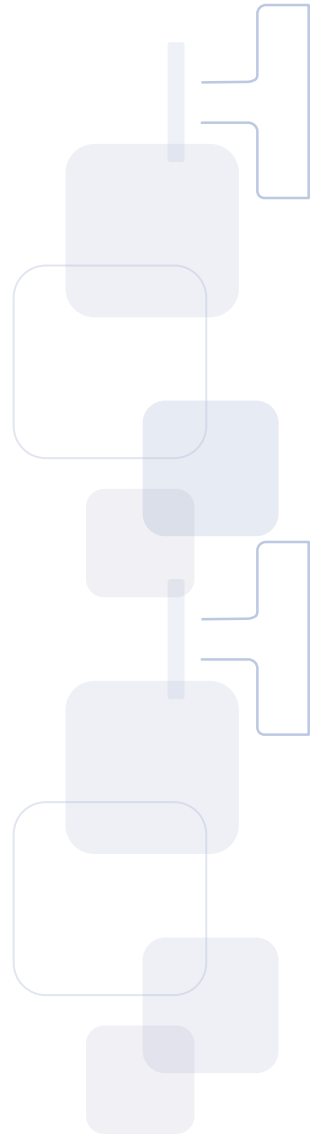
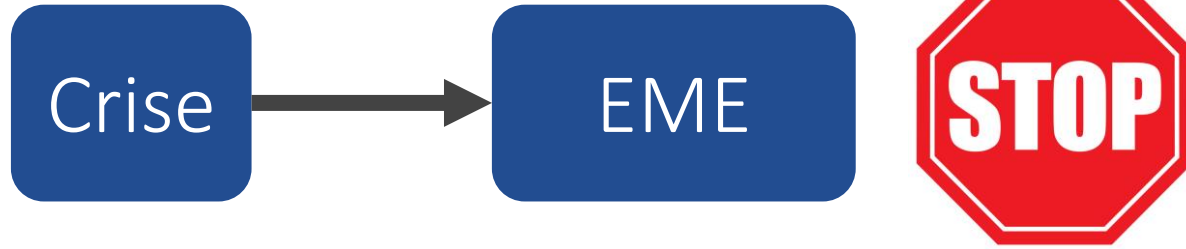
*Lowenstein D and Aldredge B, Neurology 1993*



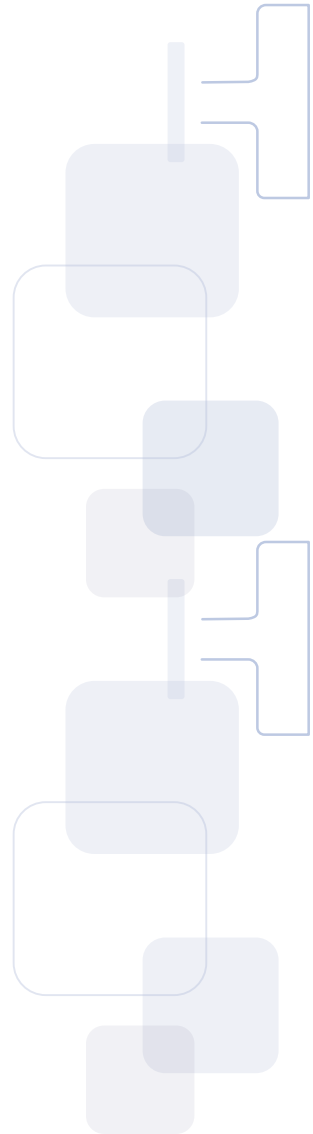
# TRAITEMENT DE L'ETAT DE MAL ÉPILEPTIQUE





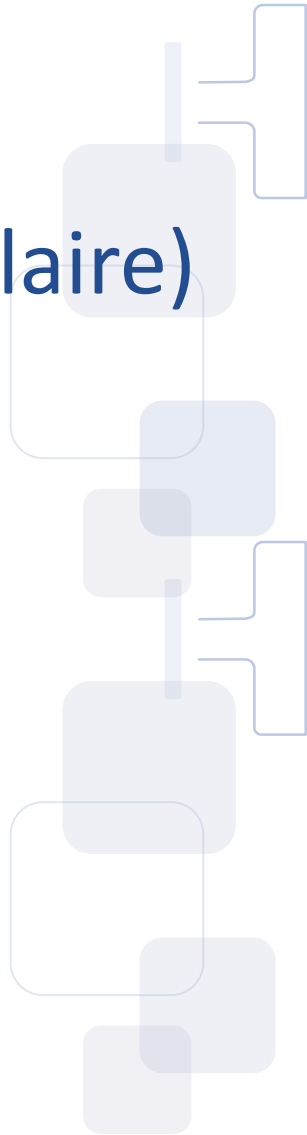


Crise



Administration aisée (ni intraveineuse, ni intramusculaire)

Effet rapide et de courte durée



## Benzodiazépine

Administration intranasale, buccale, rectale, par inhalation




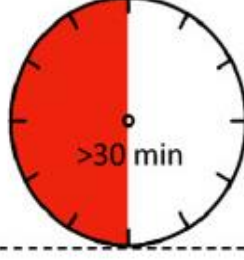


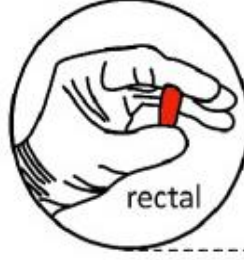
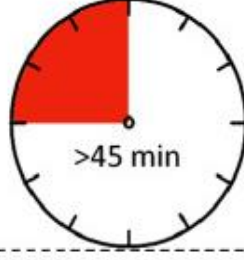
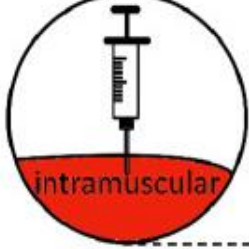





## Benzodiazépine

Administration intranasale, buccale, rectale, par inhalation





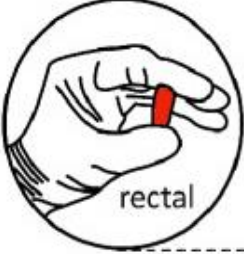

=« Rescue medication »  
= « Traitement de secours »

# TRAITEMENT DU CLUSTER/DE LA CRISE PROLONGÉE

Route of delivery	Available benzodiazepines <sup>#</sup>	Time till cessation	Comment on clinical use in status epilepticus	Route of delivery	Available benzodiazepines <sup>#</sup>	Time till cessation	Comment on clinical use in status epilepticus
 <p>intra venous</p>	<ul style="list-style-type: none"> <li>• Clonazepam</li> <li>• Diazepam</li> <li>• Lorazepam</li> <li>• Midazolam</li> </ul>	 <p>5 min</p>	<ul style="list-style-type: none"> <li>• Gold standard if PVC established</li> <li>• Restricted to medical professionals</li> </ul>	 <p>buccal</p>	<ul style="list-style-type: none"> <li>• Lorazepam</li> <li>• Midazolam</li> </ul>	 <p>&gt;30 min</p>	<ul style="list-style-type: none"> <li>• Feasible option for seizure clusters or in palliative care settings</li> <li>• Easy to use for medical non-professionals</li> </ul>
 <p>nasal</p>	<ul style="list-style-type: none"> <li>• Diazepam</li> <li>• Lorazepam</li> <li>• Midazolam</li> </ul>	 <p>5-15 min</p>	<ul style="list-style-type: none"> <li>• Feasible option if PVC is not yet established</li> <li>• Easy to use for medical non-professionals</li> </ul>	 <p>rectal</p>	<ul style="list-style-type: none"> <li>• Diazepam</li> </ul>	 <p>&gt;45 min</p>	<ul style="list-style-type: none"> <li>• Feasible option for seizure clusters or in palliative care settings</li> <li>• Difficult to handle, may cause discomfort</li> </ul>
 <p>intramuscular</p>	<ul style="list-style-type: none"> <li>• Diazepam</li> <li>• Lorazepam</li> <li>• Midazolam</li> </ul>	 <p>5-45 min</p>	<ul style="list-style-type: none"> <li>• Feasible option if PVC is not yet established</li> <li>• Autoinjectors available for non-professionals</li> </ul>	 <p>oral</p>	<ul style="list-style-type: none"> <li>• Clonazepam</li> <li>• Diazepam</li> <li>• Lorazepam</li> <li>• Midazolam</li> </ul>	 <p>&gt;60 min</p>	<ul style="list-style-type: none"> <li>• Inadequate route for treatment of status epilepticus</li> </ul>

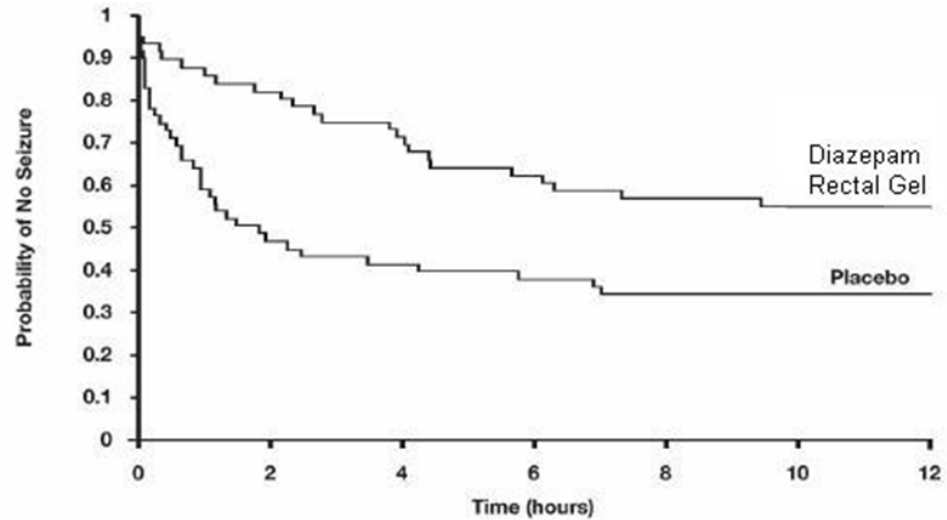
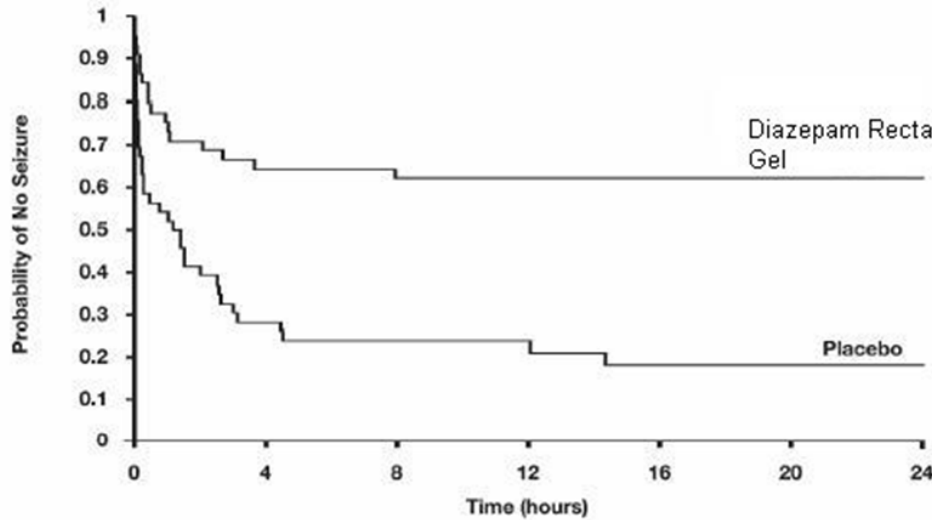
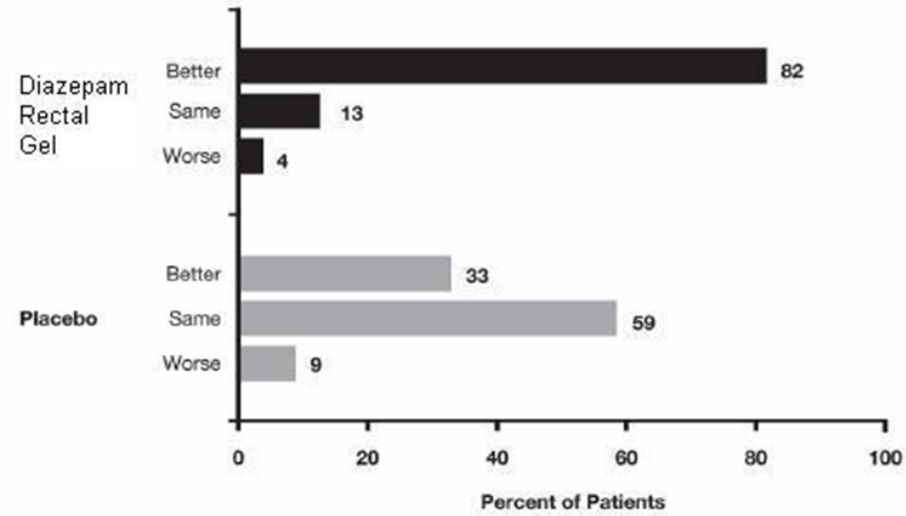
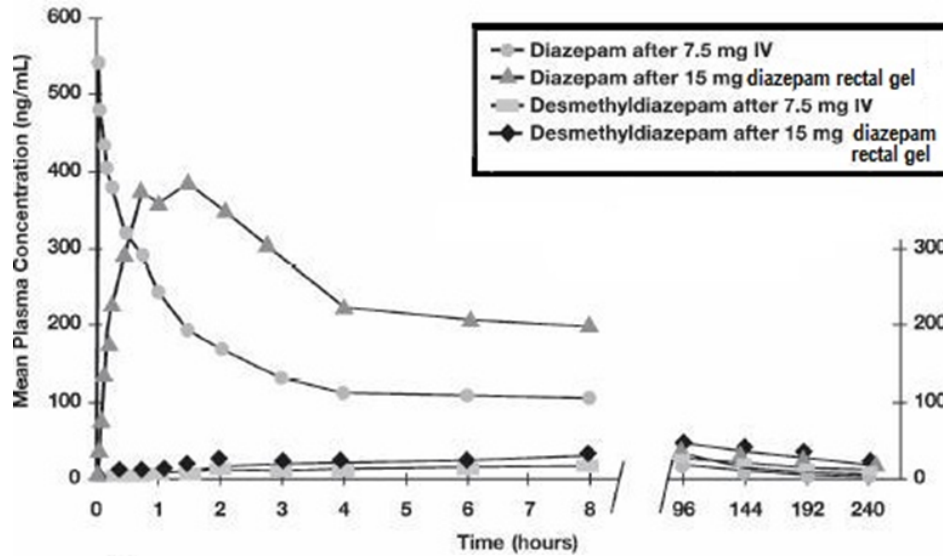
Adapté de Kienitz R, et al. CNS Drugs. 2022;36(9):951-975.

# TRAITEMENT DU CLUSTER/DE LA CRISE PROLONGÉE

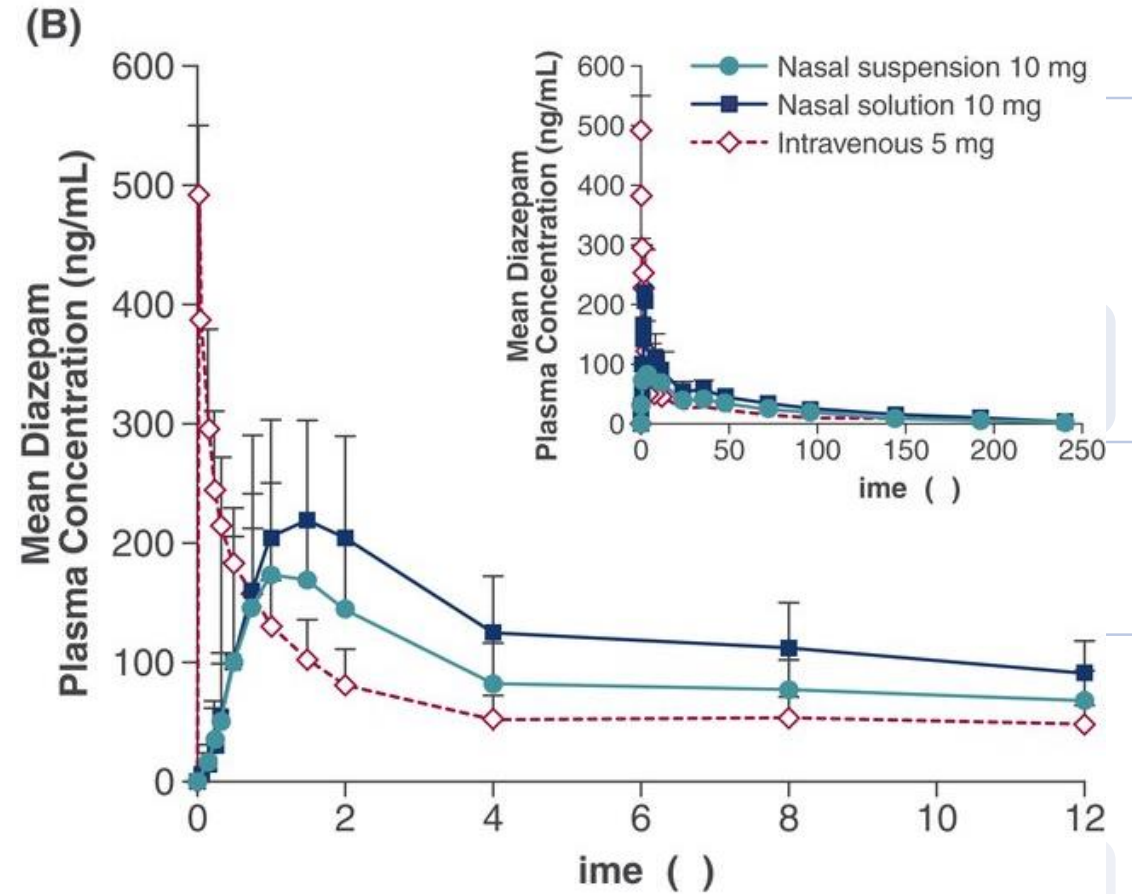
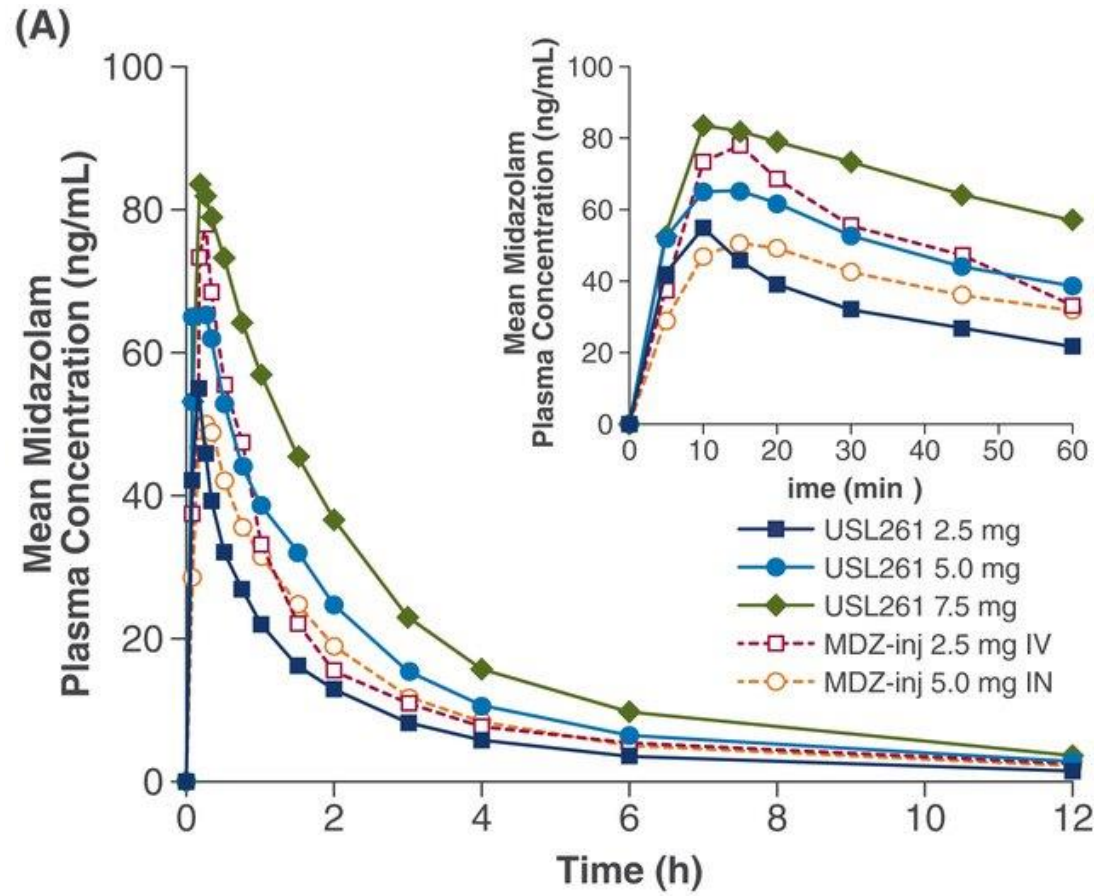
Route of delivery	Available benzodiazepines <sup>#</sup>	Time till cessation	Comment on clinical use in status epilepticus	Route of delivery	Available benzodiazepines <sup>#</sup>	Time till cessation	Comment on clinical use in status epilepticus
	<ul style="list-style-type: none"><li>• Diazepam</li><li>• Lorazepam</li><li>• Midazolam</li></ul>	 <p>5-15 min</p>	<ul style="list-style-type: none"><li>• Feasible option if PVC is not yet established</li><li>• Easy to use for medical non-professionals</li></ul>		<ul style="list-style-type: none"><li>• Lorazepam</li><li>• Midazolam</li></ul>	 <p>&gt;30 min</p>	<ul style="list-style-type: none"><li>• Feasible option for seizure clusters or in palliative care settings</li><li>• Easy to use for medical non-professionals</li></ul>
					<ul style="list-style-type: none"><li>• Diazepam</li></ul>	 <p>&gt;45 min</p>	<ul style="list-style-type: none"><li>• Feasible option for seizure clusters or in palliative care settings</li><li>• Difficult to handle, may cause discomfort</li></ul>

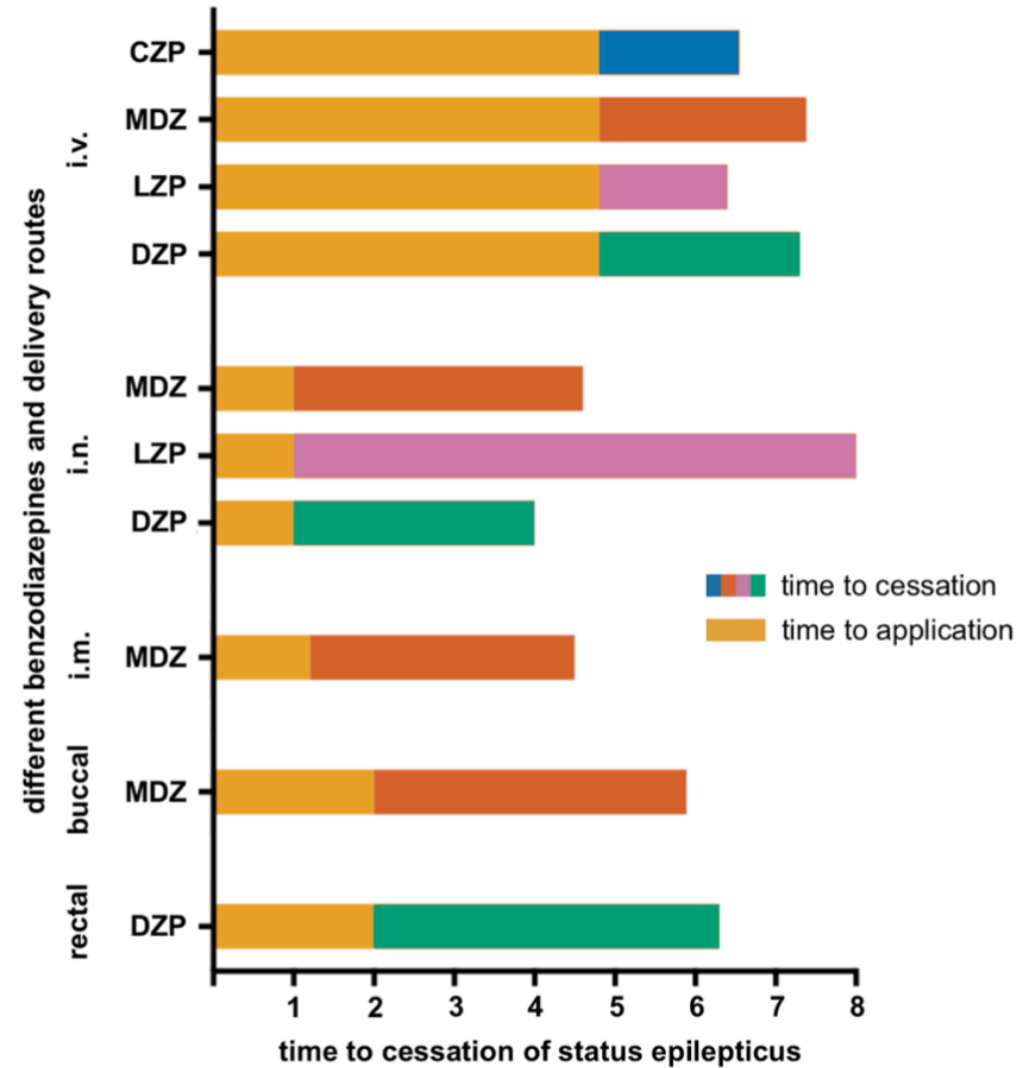
Adapté de Kienitz R, et al. *CNS Drugs*. 2022;36(9):951-975.

# TRAITEMENT DU CLUSTER/DE LA CRISE PROLONGÉE



Dreifuss et al., NEJM 1998; Cereghino et al., 1998; Fakhoury et al., Epilepsy Behav 2007





Adapté de Kienitz R, et al. CNS Drugs. 2022;36(9):951-975.

Midazolam 2.5mg intranasal

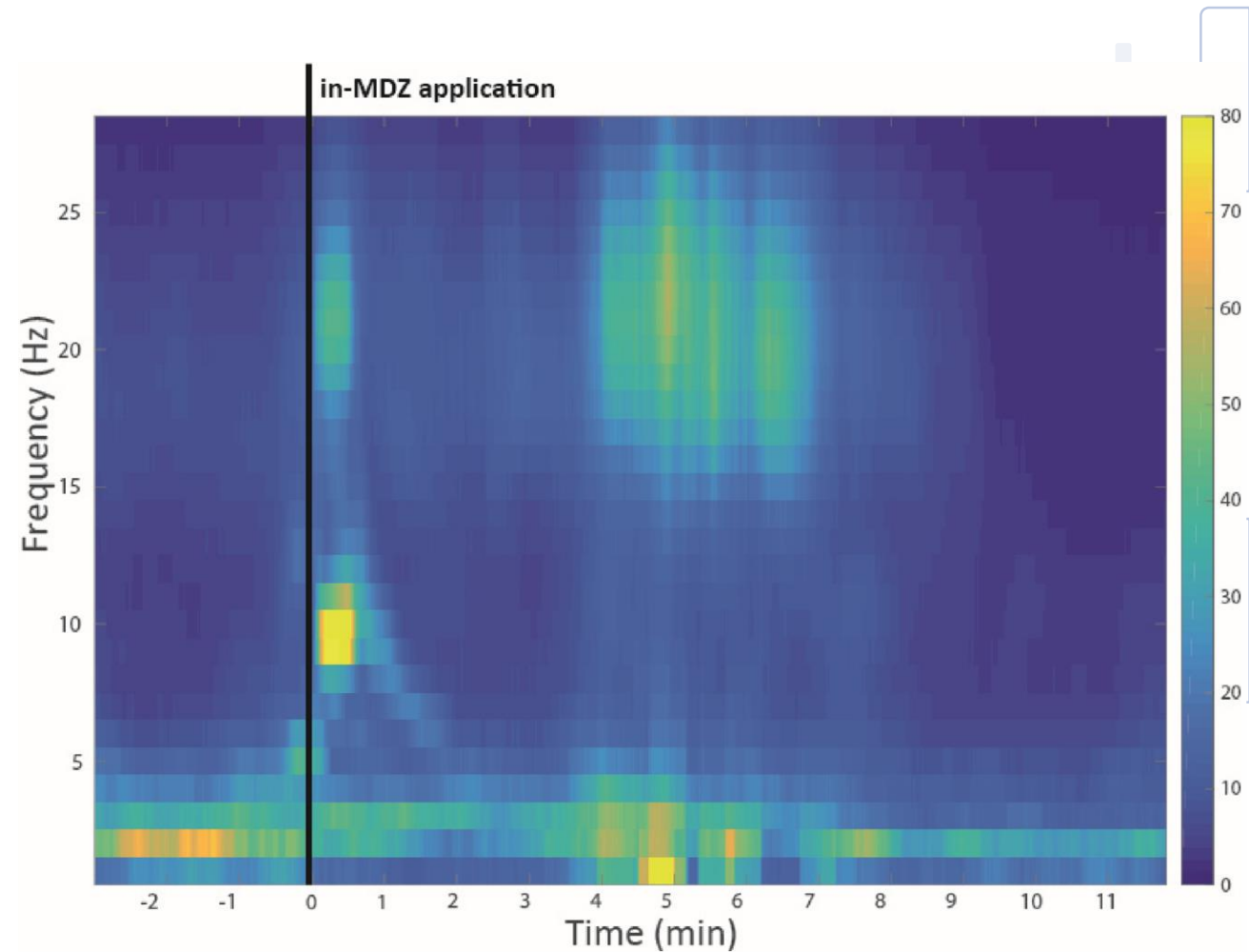
Réponse dans 57% des cas

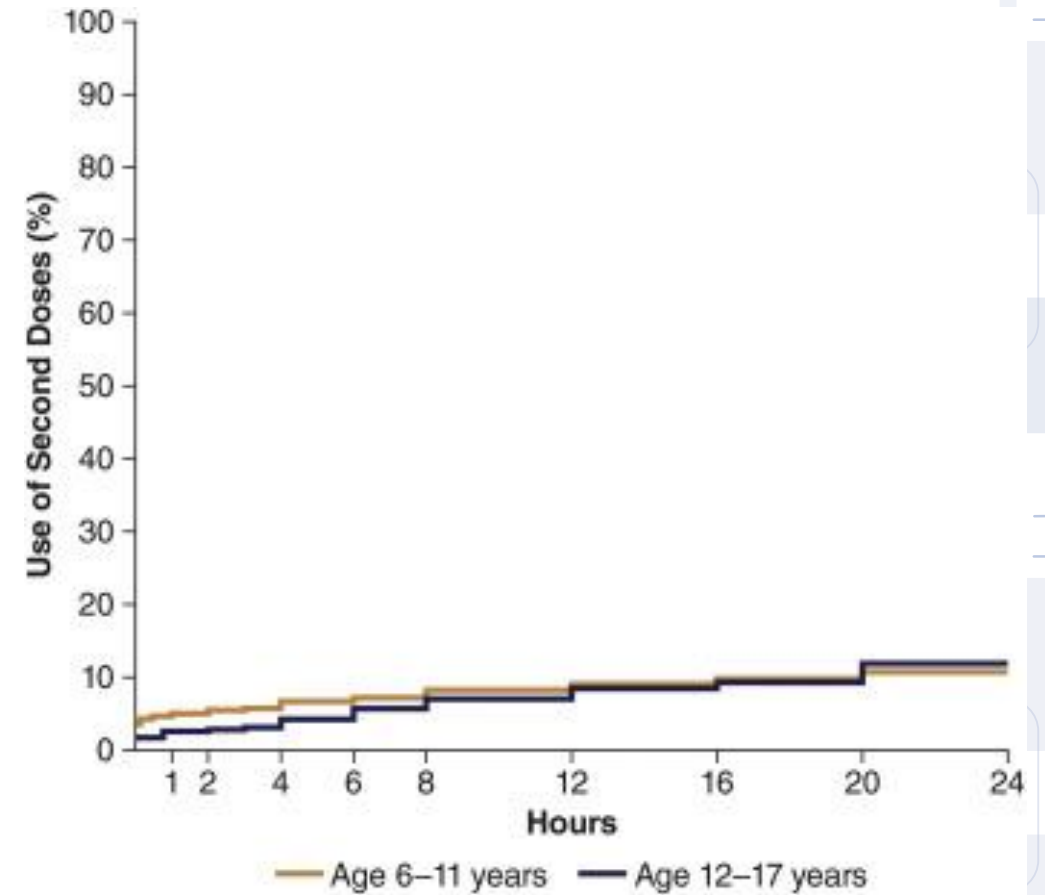
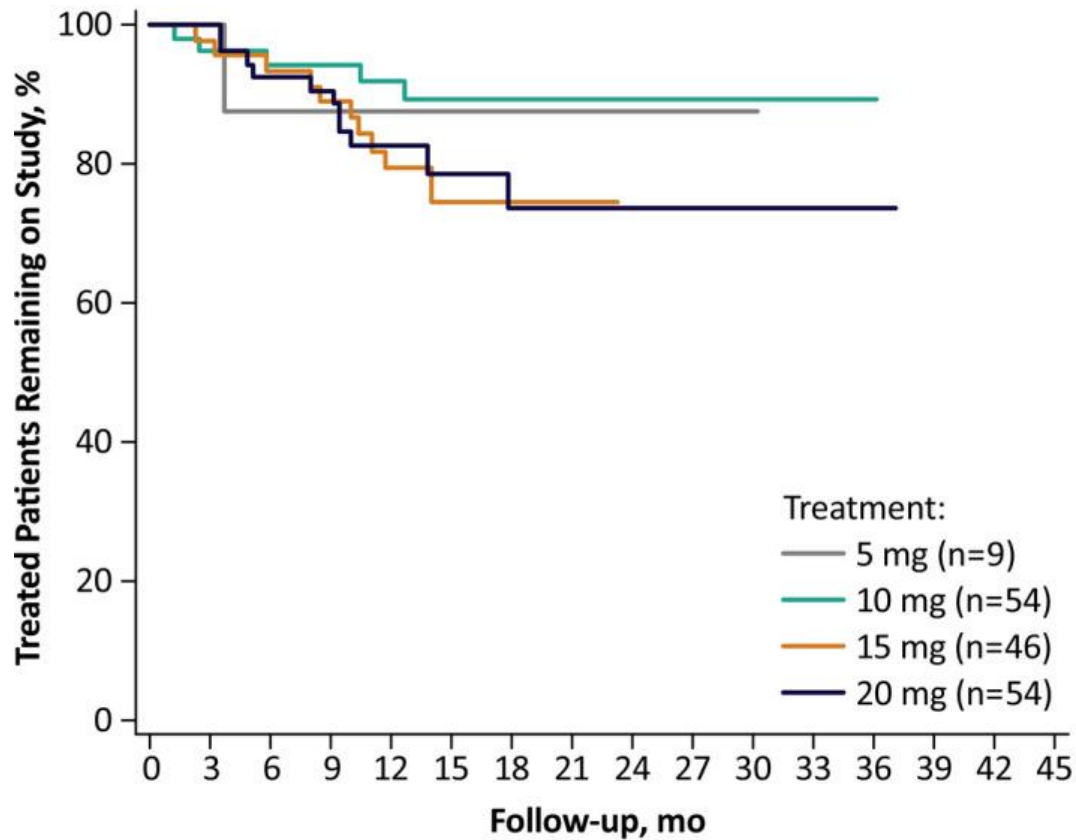
Arrêt de la crise après 5 (0.5-15) minutes

Effets indésirables:

- Irritation nasale (12%)
- Sédation prolongée (3%)
- Pas de détresse respiratoire!







Effet sur l'EEG après 4 (2-6) minutes



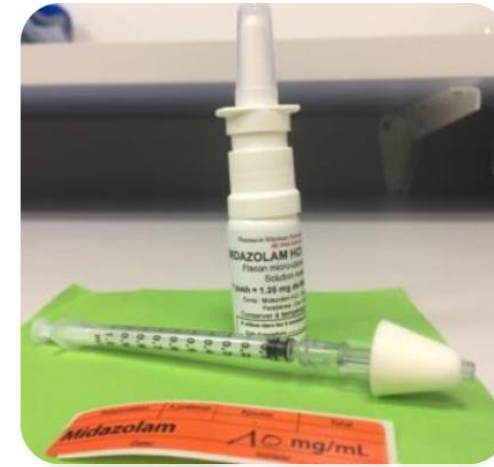




## Indication: Acute Seizures (EU)

Agent	Approved indication	Other considerations
<p><b>Midazolam</b></p> <p> Oromucosal solution</p> <p>3 months to &lt;18 years </p>	<p>Prolonged, acute, convulsive seizure</p>	<ul style="list-style-type: none"> <li>• Duration of effectiveness not established</li> <li>• Age-based dosing</li> <li>• Hypersalivation or clenched jaw may affect treatment</li> <li>• First-pass metabolism</li> </ul>
<p><b>Midazolam</b></p> <p> Intranasal spray</p> <p>≥2 years </p>	<p>Prolonged, acute, convulsive seizure</p>	<ul style="list-style-type: none"> <li>• Duration of effectiveness not established</li> <li>• Age- and weight-based dosing</li> </ul>
<p><b>Diazepam</b></p> <p> Rectal solution/ suppositories</p> <p>≥1 year </p>	<p>Epileptic and febrile convulsions</p>	<ul style="list-style-type: none"> <li>• Duration of effectiveness not established</li> <li>• Patient must be positioned and partially disrobed (affects ease of use and social issues)</li> <li>• Age-based dosing</li> </ul>

# MOLÉCULES ET VOIES D'ADMINISTRATION



Holsti et al., Arch Pediatr Adolesc Med 2010; Abou-Khalil et al., Epilepsia 2013; Henney et al., Epilepsy Res. 2014; Rogin et al., Epilepsia 2014 ;  
Résumé dans Maglalang et al., Epilepsia 2018 et Gidal B and Detyniecki K. Epilepsia. 2022

*Identité et contacts (famille, proches, neurologue/neuropédiatre, etc.)*

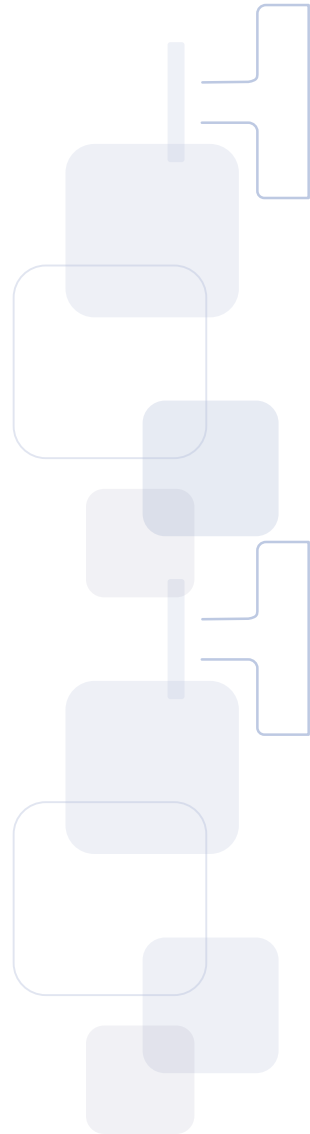
*Description de l'épilepsie et des crises habituelles*

*Traitement chronique (médicaments, neurostimulation)*

*Conseils de premiers soins (rester calme, observation, respiration)*

*Risque d'urgences épileptiques (clusters et crises prolongées)*

*Conduite à tenir en cas d'urgence (112, traitement de l'urgence)*



# PLAN D'ACTION DE CRISE

H.U.B.

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JULES BORDET  
INSTITUUT

Hôpital  
Erasmus

ULB

Hôpital Universitaire  
des Enfants (Université  
Université - Kinderziekenhuis  
Koningin Fabia



## MY SEIZURE PLAN

Epilepsy Foundation Eastern PA  
919 Walnut Street, Suite 700  
Philadelphia, PA 19107

Name: \_\_\_\_\_ Birth Date: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_  
1st Emergency Contact: \_\_\_\_\_ Relation: \_\_\_\_\_  
Phone(s): \_\_\_\_\_ Email: \_\_\_\_\_  
2nd Emergency Contact: \_\_\_\_\_ Relation: \_\_\_\_\_  
Phone(s): \_\_\_\_\_ Email: \_\_\_\_\_

### SEIZURE INFORMATION

Seizure Type/Nickname	What Happens	How Long It Lasts	How Often

### TRIGGERS

\_\_\_\_\_

\_\_\_\_\_

### DAILY SEIZURE MEDICINE

Medicine Name	Total Daily Amount	Amount of Tab/Liquid	How Taken (time of each dose and how much)

### OTHER SEIZURE TREATMENTS

Device Type: \_\_\_\_\_ Model: \_\_\_\_\_ Serial#: \_\_\_\_\_ Date Implanted: \_\_\_\_\_  
Dietary Therapy: \_\_\_\_\_ Date Begun: \_\_\_\_\_  
Special Instructions: \_\_\_\_\_  
Other Therapy: \_\_\_\_\_

www.efepa.org

Epilepsy Foundation Eastern PA

(215) 629-5003



## MY SEIZURE PLAN

Epilepsy Foundation Eastern PA  
919 Walnut Street, Suite 700  
Philadelphia, PA 19107

### SEIZURE FIRST AID

- Keep calm, provide reassurance, remove bystanders
- Keep airway clear, turn on side if possible, nothing in mouth
- Keep safe, remove objects, do not restrain
- Time, observe, record what happens
- Stay with person until recovered from seizure
- Other care needed: \_\_\_\_\_

### WHEN SEIZURES REQUIRE ADDITIONAL HELP

Type of Emergency (long, clusters or repeated events)	Description	What to Do

### "AS NEEDED" TREATMENTS (VNS magnet, medicines)

Name	Amount to Give	When to Give	How to Give

### CALL 911 OR SEEK EMERGENCY MEDICAL ATTENTION IF ...

- Generalized seizure longer than 5 minutes
- Two or more seizures without recovering between seizures
- "As needed" treatments don't work
- Injury occurs or is suspected, or seizure occurs in water
- Breathing, heart rate or behavior doesn't return to normal
- Unexplained fever or pain, hours or few days after a seizure
- Other care needed: \_\_\_\_\_

### HEALTH CARE CONTACTS

Epilepsy Doctor: \_\_\_\_\_ Phone: \_\_\_\_\_  
Nurse/Other Health Care Provider: \_\_\_\_\_ Phone: \_\_\_\_\_  
Preferred Hospital: \_\_\_\_\_ Phone: \_\_\_\_\_  
PCP or Other Doctor: \_\_\_\_\_ Phone: \_\_\_\_\_  
Pharmacy: \_\_\_\_\_ Phone: \_\_\_\_\_

SPECIAL INSTRUCTIONS: \_\_\_\_\_

My signature \_\_\_\_\_ Provider signature \_\_\_\_\_ Date \_\_\_\_\_



## Que faire en cas de crise d'épilepsie convulsive

1

**RESTER** près de la personne jusqu'à ce qu'elle récupère

- Regarder sa montre (chronométrer la crise)
- La majorité des crises s'arrêtent spontanément avant 3 minutes



2

**PROTEGER** la personne

- Placer un coussin sous la tête
- Sécuriser l'environnement



3

**TOURNER** la personne sur le côté, en PLS\*, dès que possible



\*Position latérale de sécurité



Appel  
112 si

- Les convulsions durent > 5 minutes
- Les crises se répètent
- La personne s'est blessée
- C'est la première crise
- La personne ne retrouve pas son état habituel



À ne  
PAS  
faire

- NE rien mettre en bouche !
- NE pas empêcher les mouvements !



Garder son calme : la majorité des crises ne nécessitent pas de prise en charge médicale urgente. Dans certains cas, administrer un médicament de secours selon la prescription médicale.

[www.ligueepilepsie.be](http://www.ligueepilepsie.be)

<https://ligueepilepsie.be/Que-faire-en-cas-de-crise.html>

<https://www.efappe.epilepsies.fr/vivre-avec/conduite-a-tenir-en-cas-de-crise/>

[https://www.epilepsie-info.fr/fiche\\_infos\\_patients/gestes-a-effectuer-en-cas-de-crise-depilepsie/](https://www.epilepsie-info.fr/fiche_infos_patients/gestes-a-effectuer-en-cas-de-crise-depilepsie/)

<https://www.cureepilepsy.org/understanding-epilepsy/epilepsy-basics/seizure-action-plan/>

<https://seizureactionplans.org/sap-examples/>

## *Urgences épileptiques*

- ❑ Risque de complications, croissant avec la durée de la crise
- ❑ Risque de résistance au traitement, croissant avec la durée de la crise

## *Traitement aigu des urgences épileptiques (clusters et crises prolongées)*

- ❑ Le plus tôt possible dès que la crise se prolonge ou se répète
- ❑ Molécule et voie d'administration adaptées

## *Plan d'action de crise*

- ❑ Individualisé et détaillé, pour les patients à risque



## Centre de Référence pour la prise en charge de l'Épilepsie Réfractaire – HUB

- ▣ Dr Sarah Caroyer
- ▣ Dr Charlotte Damien
- ▣ Dr Charlotte De Maeseneire
- ▣ Pr Chantal Depondt
- ▣ Dr Benjamin Legros
- ▣ Pr Estelle Rikir

