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Epilepsy in Pregnancy: Balancing Seizure Control and Medication Safety

A cross-market view of how neurology HCPs approach pregnancy planning, antiseizure medication selection, fetal safety, therapeutic monitoring, seizure recurrence, and postpartum dose management.

Preconception planning → ASM selection → Pregnancy monitoring → Dose adjustment → Postpartum transition

112	6	61.6%	9010428
Survey records	Countries represented USA · UK · Canada · Italy · France · Germany	Completion rate	SGID

WHY THIS REPORT

Epilepsy management in pregnancy is a sequence of decisions, not a single medication choice.

For neurology HCPs, the reproductive conversation can begin years before pregnancy and can change again at conception, during each trimester, and after delivery. The challenge is to reduce fetal medication risk without destabilizing seizure control - while recognizing that pregnancy itself can alter drug exposure.

That makes timing central. A planned pregnancy creates space to review antiseizure medication, contraception, folic acid, seizure history, drug interactions, and baseline concentrations. An unplanned pregnancy compresses those decisions into a period when fetal exposure may already have occurred and changing an effective regimen may carry its own risk.

The MDForLives survey explores where clinicians say reproductive issues most change epilepsy management, what drives preconception medication decisions, how pregnancy alters monitoring, and what respondents believe could make care safer over the next several years.

METHODOLOGY

A cross-market survey of professional neurology and epilepsy-care HCPs.

The survey included professional HCP respondents across the USA, UK, Canada, Italy, France, and Germany. The source file contained 112 survey records with a 61.6% completion rate. Question-level response bases varied as respondents progressed through the survey.

> The response export is the numerical source of truth. Internal operational fields were excluded from interpretation. Multi-select questions are identified in the narrative, and open-ended comments were reviewed qualitatively without creating coded percentages.

EXECUTIVE SUMMARY

Six signals define the reproductive epilepsy-management challenge.

01

65.4% identify unplanned pregnancy as the leading complication

The biggest challenge is often lack of preparation time rather than a single medication side effect.

02

73.4% say planned pregnancy prompts ASM review

Reproductive intent is the strongest trigger for revisiting the regimen.

03

Fetal safety dominates preconception selection

Valproate teratogenicity risk and fetal neurodevelopmental risk are each selected by 40.5%.

04

46.8% say falling serum levels most alter pregnancy management

Drug exposure can change even when the prescribed dose does not.

05

Seizure recurrence, fetal safety, and serum levels guide adjustment together

The leading adjustment signals are 62.3%, 55.8%, and 50.6%, respectively, in a multi-select question.

06

65.8% want safer pregnancy-compatible ASMs

Respondents see medication innovation itself as the development most likely to transform care.

01

REPRODUCTIVE PRESENTATION

Pregnancy planning changes the epilepsy-management frame more than any other reproductive presentation.

56.3% select pregnancy planning as the reproductive presentation that most often changes management.

CONTEXT

A patient can be seizure-stable for years and still require a different treatment conversation when pregnancy becomes a possibility. Medication safety, contraception, folic acid, seizure history, and the feasibility of changing therapy all become part of the same decision.

WHAT THE DATA SHOWS

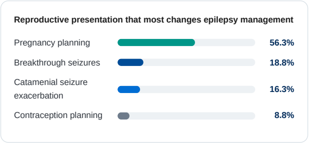
Pregnancy planning leads at 56.3%, followed by breakthrough seizures at 18.8%, catamenial seizure exacerbation at 16.3%, and contraception planning at 8.8%.

THE INSIGHT

The result suggests that reproductive intent is not merely contextual information. It can change how an otherwise stable epilepsy regimen is judged.

WHY IT MATTERS

The 2024 AAN/AES/SMFM guideline emphasizes optimizing antiseizure medication and dose at the earliest possible opportunity before pregnancy. The survey finding reflects the practical reason: the safest time to reconsider a regimen is often before pregnancy compresses the decision window.


Reproductive presentation that most changes epilepsy management

02

WHEN THE REGIMEN GETS REOPENED

Planned pregnancy is the strongest trigger for antiseizure medication review.

73.4% select planned pregnancy as a factor prompting ASM review.

CONTEXT

Medication review in epilepsy is often triggered by loss of seizure control or adverse effects. Reproductive planning adds another trigger because the risk-benefit profile of the same medication can change when fetal exposure becomes relevant.

WHAT THE DATA SHOWS

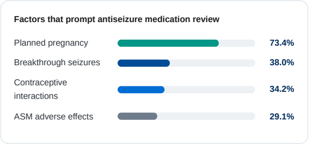
In a select-up-to-two question, planned pregnancy is chosen by 73.4%, breakthrough seizures by 38.0%, contraceptive interactions by 34.2%, and ASM adverse effects by 29.1%.

THE INSIGHT

The review point sits at the intersection of neurology and reproductive care. Clinicians are not only asking whether the ASM is working, but whether it remains the right regimen for the patient's next phase of life.

WHY IT MATTERS

Contraceptive interactions also matter because some enzyme-inducing ASMs can reduce the effectiveness of hormonal contraception. A reproductive review therefore needs to include pregnancy intention, contraception, and medication interaction rather than treating each as a separate visit topic.


Factors that prompt antiseizure medication review

03

PRECONCEPTION MEDICATION SELECTION

Preconception choice is dominated by fetal risk, with valproate and neurodevelopment at the center.

40.5% select valproate teratogenicity risk and 40.5% select fetal neurodevelopmental risk.

CONTEXT

The safest reproductive plan is not simply the medication with the lowest theoretical fetal risk. It is the safest regimen that is also appropriate for the epilepsy syndrome and capable of maintaining seizure control.

WHAT THE DATA SHOWS

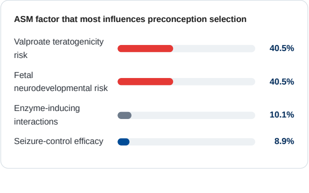
Valproate teratogenicity risk and fetal neurodevelopmental risk each account for 40.5% of responses. Enzyme-inducing interactions account for 10.1%, and seizure-control efficacy for 8.9% in this single-select question.

THE INSIGHT

The forced-choice format makes fetal safety especially visible, but it should not be interpreted as evidence that seizure efficacy is clinically unimportant. In practice, the two are inseparable because uncontrolled convulsive seizures also create maternal and fetal risk.

WHY IT MATTERS

The AAN/AES/SMFM guideline recommends considering lamotrigine, levetiracetam, or oxcarbazepine when appropriate and avoiding valproic acid when clinically feasible. In the UK, MHRA reproductive-risk requirements add regulatory safeguards around valproate use in people who can become pregnant.


ASM factor that most influences preconception selection

04

THE PLANNING GAP

Unplanned pregnancy removes the time clinicians need to optimize reproductive epilepsy care.

65.4% identify unplanned pregnancy as the factor that most commonly complicates management.

CONTEXT

Preconception planning works only when pregnancy intention is known early enough. When pregnancy is unplanned, medication exposure may already have occurred, folic acid may not have been started, and the patient may be understandably anxious about continuing treatment.

WHAT THE DATA SHOWS

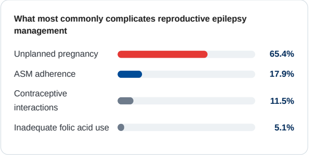
Unplanned pregnancy leads at 65.4%, followed by ASM adherence at 17.9%, contraceptive interactions at 11.5%, and inadequate folic acid use at 5.1%.

THE INSIGHT

The leading complication is a timing failure. It turns decisions that could have been deliberate into decisions that must be made under time pressure after pregnancy has already started.

WHY IT MATTERS

Current guidance stresses that patients should not stop ASMs without medical supervision. The clinical response to an unplanned pregnancy therefore needs to protect seizure control while rapidly reassessing medication risk, adherence, folic acid, and specialist follow-up.



05

STRATEGY BEFORE PREGNANCY

Switching to a lower-risk ASM leads, but one-size-fits-all switching does not.

39.0% select switching to a lower-risk ASM as the primary strategy before pregnancy.

CONTEXT

Preconception medication changes are most useful when there is enough time to taper, introduce an alternative, and confirm that seizure control remains acceptable before pregnancy begins.

WHAT THE DATA SHOWS

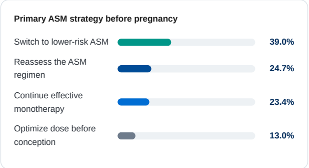
Switching to a lower-risk ASM is selected by 39.0%, reassessing the ASM regimen by 24.7%, continuing effective monotherapy by 23.4%, and optimizing dose before conception by 13.0%.

THE INSIGHT

The spread across these options suggests individualized decision-making. Some patients may benefit from switching, while others may be better served by continuing an effective monotherapy or changing dose rather than changing drug.

WHY IT MATTERS

The clinical priority is the lowest-risk regimen that still controls the patient's seizures. That is why the same medication can be appropriate for one patient and a poor reproductive choice for another.



06

PREGNANCY CHANGES DRUG EXPOSURE

Falling serum ASM levels can become the first sign that a stable regimen is no longer stable.

46.8% say falling serum ASM levels most alter management during pregnancy.

CONTEXT

Pregnancy can alter clearance and distribution of antiseizure medications. For some ASMs, concentrations may fall despite an unchanged oral dose, increasing the risk that a patient who was previously controlled begins to experience breakthrough seizures.

WHAT THE DATA SHOWS

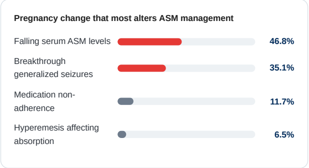
Falling serum ASM levels lead at 46.8%, breakthrough generalized seizures follow at 35.1%, medication non-adherence at 11.7%, and hyperemesis affecting absorption at 6.5%.

THE INSIGHT

The survey makes therapeutic monitoring clinically concrete. The concern is not the laboratory value by itself; it is what declining exposure may mean for seizure protection.

WHY IT MATTERS

NICE guidance recommends considering baseline preconception concentrations and monitoring selected ASMs during pregnancy when clinically appropriate. The goal is to interpret levels alongside seizure history, adherence, symptoms, and the patient's individual therapeutic baseline.



07

HOW ADJUSTMENT DECISIONS ARE MADE

Seizure recurrence, fetal safety, and serum levels all compete for attention during pregnancy.

62.3% select seizure recurrence, 55.8% fetal safety, and 50.6% serum ASM concentrations as adjustment factors.

CONTEXT

Pregnancy dose adjustment is rarely justified by one data point. A lower serum concentration may not matter if seizure control remains stable, while recurrent seizures can demand action even when fetal-safety concerns make escalation uncomfortable.

WHAT THE DATA SHOWS

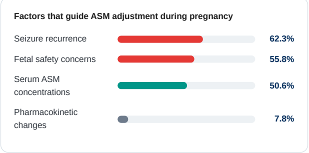
In a select-up-to-two question, seizure recurrence is selected by 62.3%, fetal safety concerns by 55.8%, serum ASM concentrations by 50.6%, and pharmacokinetic changes by 7.8%.

THE INSIGHT

The leading factors describe a three-way clinical balance: what the patient is experiencing, what the medication level is doing, and what the fetus may be exposed to.

WHY IT MATTERS

This is why therapeutic drug monitoring is most useful when it is individualized. The aim is not to chase a population reference range, but to maintain the patient's effective exposure while avoiding unnecessary dose escalation.



08

POSTPARTUM TRANSITION

Delivery ends the pregnancy, not the medication-management problem.

32.9% favor restoring the pre-pregnancy ASM dose and 32.9% favor checking postpartum serum levels.

CONTEXT

If an ASM dose was increased during pregnancy to compensate for higher clearance, keeping that dose unchanged after delivery can create a different problem as physiology returns toward baseline.

WHAT THE DATA SHOWS

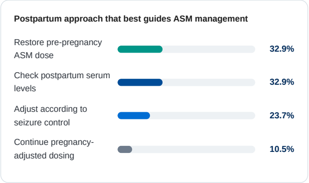
Restoring the pre-pregnancy dose and checking postpartum serum levels are tied at 32.9%. Adjusting according to seizure control is selected by 23.7%, while continuing pregnancy-adjusted dosing is selected by 10.5%.

THE INSIGHT

The split between dose restoration and level checking points to the same underlying need: the postpartum period requires a planned pharmacologic transition, not passive continuation of the pregnancy regimen.

WHY IT MATTERS

NICE recommends making an antenatal plan to return medication toward preconception dosing in the first days after birth when doses were changed during pregnancy. Clinical status, serum levels where relevant, sleep disruption, and seizure risk all remain part of postpartum review.



09

WHAT COULD CHANGE NEXT

Respondents want safer pregnancy-compatible ASMs more than another layer of technology.

65.8% select safer pregnancy-compatible ASMs as the development most likely to transform care.

CONTEXT

Digital seizure prediction and personalized monitoring may make care more precise, but they do not remove the fundamental tension between maintaining seizure control and limiting fetal exposure to higher-risk medication.

WHAT THE DATA SHOWS

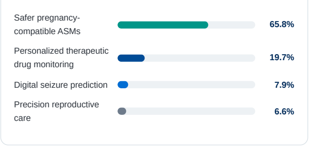
Safer pregnancy-compatible ASMs lead at 65.8%, personalized therapeutic drug monitoring follows at 19.7%, digital seizure prediction at 7.9%, and precision reproductive care at 6.6%.

THE INSIGHT

The strongest innovation preference is pharmaceutical rather than digital. Respondents appear to want more treatment options that reduce the need to choose between seizure stability and reproductive safety.

WHY IT MATTERS

Recent guideline and regulatory updates show how rapidly reproductive safety is reshaping epilepsy prescribing. For example, the MHRA introduced new pregnancy-prevention measures for topiramate in 2024. Future progress will depend on both safer medicines and better evidence about how to monitor and use them across pregnancy.



OPEN-ENDED CASE LENS

Real-world cases show how quickly reproductive epilepsy care becomes a balance between competing risks.

The open-ended question asked respondents to describe a challenging epilepsy case involving reproductive care, what changed management, and what remained unresolved.

Unplanned pregnancy compressed decision time

Several usable comments described pregnancies that began while patients were taking valproate, topiramate, polytherapy, or another established regimen, forcing rapid reassessment after exposure had already occurred.

Seizure control remained the counterweight to fetal safety

Respondents repeatedly described difficulty changing medication in patients with refractory epilepsy, breakthrough seizures, or a history of worsening when a drug was reduced.

Medication switching could create new instability

Drug-level monitoring became more important during pregnancy

Comments included patients who experienced seizure recurrence or hospitalization during attempts to move toward a pregnancy-compatible regimen.

Declining levels, frequent blood draws, and increased monitoring were cited when seizure control changed during pregnancy.

Fear of fetal harm could affect adherence

One respondent described non-adherence driven by concern about medication effects on the baby, highlighting the importance of counseling and shared decision-making.

Multidisciplinary care helped when decisions were most complex

Some comments described coordinated neurology and maternal-fetal or obstetric input when refractory seizures, medication risk, or multiple ASMs made the trade-offs difficult.

> The qualitative responses are not converted into percentages. They add context to the quantitative findings by showing that reproductive epilepsy care is often defined by timing, seizure severity, medication history, and the practical difficulty of changing a regimen that is already controlling seizures.

FREQUENTLY ASKED QUESTIONS

Common clinical questions about epilepsy in pregnancy.

Which antiseizure medications are considered when treating people with epilepsy who may become pregnant?

Medication choice should be individualized to epilepsy type, prior seizure control, comorbidities, and reproductive plans. The 2024 AAN/AES/SMFM guideline recommends considering lamotrigine, levetiracetam, or oxcarbazepine when clinically appropriate to reduce the risk of major congenital malformations, while recognizing that the most effective medicine for seizure control remains an essential part of the decision.

Why is valproate a major concern in pregnancy?

Valproate exposure in pregnancy is associated with higher risks of major congenital malformations, neural tube defects, and adverse neurodevelopmental outcomes. Current professional guidance recommends avoiding valproate in people who may become pregnant when clinically feasible, while any treatment change should be specialist-led because uncontrolled seizures also carry risk.

Should antiseizure medication be stopped when pregnancy is confirmed?

No. Antiseizure medication should not be stopped abruptly because loss of seizure control can be dangerous for the pregnant person and fetus. Once pregnancy has begun, changes to an effective regimen require careful specialist assessment of seizure risk, medication risk, and available alternatives.

Why can antiseizure medication levels fall during pregnancy?

Pregnancy can change drug clearance and distribution, lowering blood concentrations of some antiseizure medications even when the oral dose has not changed. For selected medicines and patients, clinicians may use preconception baseline levels, seizure history, adherence, and repeat concentrations to guide dose adjustment.

Is folic acid recommended for people with epilepsy who may become pregnant?

Yes. The 2024 AAN/AES/SMFM guideline recommends at least 0.4 mg of folic acid daily before and during pregnancy for people with epilepsy who may become pregnant. Local recommendations and individual clinical circumstances may support different dosing, so counseling should follow current local guidance.

How should antiseizure medication dosing be managed after delivery?

If doses were increased during pregnancy, postpartum planning should anticipate that drug clearance may return toward baseline after delivery. NICE recommends making an antenatal plan to return medications toward preconception dosages in the first days after birth, with clinical review and serum-level monitoring where appropriate.

NEUROLOGY PRACTICE LENS

What this means across the reproductive epilepsy-care pathway.

The survey suggests that the most important decisions are distributed across time. Good reproductive epilepsy care depends on anticipating the next transition rather than responding only when pregnancy changes the situation.

1. Ask about pregnancy intention before it becomes urgent

Regular reproductive planning creates time to review ASM risk, contraception, folic acid, seizure control, and alternatives before conception.

2. Protect seizure control while reducing avoidable fetal risk

Medication changes should be individualized to epilepsy type, prior response, fetal safety evidence, and the risk of destabilizing an effective regimen.

3. Use monitoring to interpret clinical change

Serum levels, seizure recurrence, adherence, absorption, and fetal-safety concerns should be considered together rather than in isolation.

4. Plan the postpartum dose transition before delivery

If pregnancy required dose escalation, build a postpartum plan for dose reduction, serum-level review where appropriate, and seizure monitoring.

CLOSING PERSPECTIVE

The central challenge is not pregnancy alone. It is managing epilepsy across changing reproductive states without losing seizure control.

The MDForLives findings point to a care pathway in which timing matters as much as medication choice. Planned pregnancy opens a window for deliberate review. Unplanned pregnancy closes much of that window and forces clinicians to balance existing fetal exposure against the risk of changing a regimen that may be preventing dangerous seizures.

The survey also shows why pregnancy cannot be managed as a static nine-month period. Drug levels may fall, seizure recurrence may emerge, fetal-safety concerns may change the acceptable dose or drug, and adherence can be affected by nausea, fear, or treatment burden. The clinician's task is therefore to interpret a moving set of signals rather than follow one fixed medication plan.

Postpartum care is the next transition, not the end of the pathway. Doses increased during pregnancy may need to move back toward preconception levels, and patients may require renewed counseling about sleep deprivation, seizure risk, breastfeeding, and medication adherence.

The strongest future preference - safer pregnancy-compatible ASMs - captures the unresolved need behind the entire survey. Better monitoring and digital prediction can improve decisions, but they cannot fully remove the trade-off between seizure control and medication-related fetal risk. Progress will come from combining safer treatments, earlier reproductive planning, individualized monitoring, and coordinated neurology-obstetric care.

Normalize preconception review

Make reproductive planning part of routine epilepsy care rather than waiting for pregnancy to trigger the conversation.

Individualize medication risk

Use current reproductive-safety evidence together with epilepsy syndrome, prior response, and seizure severity.

Monitor the patient, not only the level

Interpret serum concentrations alongside seizure recurrence, adherence, symptoms, and the patient's preconception baseline.

Build the postpartum plan antenatally

Anticipate dose normalization and follow-up before delivery so pregnancy-adjusted regimens do not simply continue by default.

Help future neurology insights reflect the reproductive-care decisions HCPs make every day.

Share your perspective with MDForLives and contribute to the evidence-led conversations shaping healthcare.

Join the Panel

REFERENCES AND DATA SOURCE

1. MDForLives Neuro Insight Survey, SGID 9010428. Source response export used for all survey statistics in this report.
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