

Navigating Electronic Signature Requirements Across the Globe

When thinking about electronic consent, many sponsors and trial teams find themselves mired in big-picture questions surrounding how to communicate a trial's goals and conduct to participants from every walk of life. Rightfully so: in the face of growing study complexity, shifting regulatory expectations, and increasing contrasting patient populations, sponsors are accountable for ensuring consent processes are both robust and fit-for-purpose from the outset, as getting consent right the first time is paramount to ensuring a trial's ultimate success.

Yet often, that success hinges equally on details. It may even come down to a single line.

For sponsors, understanding electronic signature requirements is not about selecting a single universal standard, but about designing a risk-based, regionally aligned signature strategy across the study portfolio. Qualified electronic signatures represent a crucial consideration for organizations looking to establish a practical consent roadmap, one that aligns regulatory requirements with ease of use and functionality.

Today, consent signatures typically fall into three categories:

Wet ink

Hybrid
print-to-sign

Electronic
signatures

Each with distinct operational, compliance, and scalability implications that sponsors must proactively assess during study design.



Although traditional, familiar, and still widely accepted, wet ink introduces significant manual burden, including paper handling and version control challenges that can complicate reconciliation during monitoring. Print-to-sign models offer incremental improvements to this paradigm by enabling electronic review and centralized tracking but still rely on paper-based execution and added coordination. In contrast, fully electronic signatures embed consent within digital platforms, enabling standardized workflows, automated audit trails, and greater scalability across sites and regions.

However, electronic signatures alone do not define eConsent. A true eConsent platform extends beyond document execution to ongoing consent management that encompasses the full operational lifecycle of a study. This includes educational tools, re-consent workflows, regulatory controls, and support for complex scenarios such as remote or multi-modal consent. As many modern global trials require multiple consent approaches to be employed simultaneously, complexity can quickly increase without the right infrastructure.

A unified eConsent platform that supports all modalities with clear controls and visibility is therefore critical, not only to streamline operations, but to ensure compliance, consistency, and a more participant-centric trial experience.

The regulatory foundations of electronic signatures in clinical research

As eConsent adoption accelerates across the industry, a critical question has emerged: what makes an electronic signature legally acceptable in a regulated clinical trial environment? The answer lies in a well-defined global regulatory framework, most notably the [European Union's eIDAS regulation](#), which has formally established the legal equivalence of electronic and handwritten signatures, creating a tiered model based on risk, identity assurance, and document integrity.

Under this framework, electronic signatures are not a single, uniform concept, but rather a spectrum that encompasses three distinct types: Simple Electronic Signatures (SES), Advanced Electronic Signatures (AES), and Qualified Electronic Signatures (QES). Each carries legal validity but differs significantly in the level of assurance it provides.

While all three signature types have legal validity, Advanced Electronic Signatures (AES) are sufficient for many clinical trial use cases, with Qualified Electronic Signatures (QES) applied selectively where regulations or study risk require higher assurance.

Simple Electronic Signature (SES)	Advanced Electronic Signature (AES)	Qualified Electronic Signature (QES)
Basic level of assurance	Enhanced identity verification	Highest level of assurance
Typing a name, clicking "I agree," or uploading a signature image.	Linked to the signer and protected against post-signature modification.	Verified through a Qualified Trust Service Provider (QTSP) with certified signature creation.
Best suited for lower-risk activities.	Commonly used when signer authenticity and document integrity are important.	Carries the same legal weight as a handwritten signature under eIDAS.
Focus: Convenience	Focus: Security and integrity	Focus: Regulatory certainty

For clinical research stakeholders, these distinctions are more than theoretical. They directly inform how consent processes are designed, validated, and defended under regulatory scrutiny. In high-risk, patient-facing scenarios such as informed consent, the ability to demonstrate signer identity, enforce sole control, and guarantee document integrity is foundational to patient protection and global inspection readiness.

Navigating global variability and operationalizing QES

While regulatory frameworks such as eIDAS establish a foundation for electronic signature validity, their real-world application is far from uniform. A defining reality for global clinical trials is that there is no single signature modality that is universally accepted across all countries. As a result, sponsors benefit most from eConsent platforms that support multiple signature modalities within a single, controlled environment rather

than enforcing uniformity across regions. Even within aligned frameworks, national authorities interpret and apply requirements differently, particularly for high-stakes processes like informed consent. In some jurisdictions, QES are required or strongly preferred to ensure maximum participant protection and legal certainty, while others permit AES when aligned with local risk thresholds.

This regulatory variability creates a patchwork environment that fundamentally shapes eConsent strategy. Sponsors cannot rely on a one-size-fits-all approach; instead, signature methodology must be tailored to the country, the region, or even the site. This has direct implications for study design, operational planning, and inspection readiness. Supporting multiple consent modalities within a single trial becomes not just a technical capability, but a necessity.

Against this backdrop, the implementation of QES illustrates both the promise and the complexity of high-assurance digital consent. From a workflow perspective, QES introduces a rigorously controlled process: participants must first register with a QTSP, undergo identity verification through methods such as government ID checks or biometric validation, and then apply their signature via a certified device. The resulting document is cryptographically sealed, time-stamped, and certified, creating a tamper-evident record with the highest level of legal assurance.

However, embedding this process into clinical trial operations requires more than technical integration. Leading implementations incorporate QES into a broader eConsent platform, allowing participants to review documents within a unified interface before being securely routed to the QTSP for signature execution. Critically, these platforms enable configuration at the site level, ensuring that QES is deployed only where required, while other sites may leverage AES or paper-based methods. This flexibility is essential to maintaining compliance without overburdening sites or participants.

Successful deployment, therefore, depends on a structured, phased approach. Beyond initial technology enablement, organizations must invest in operational readiness by developing standard procedures, training

site staff, and validating workflows through pilot studies before scaling globally. Continuous monitoring and support are equally important, ensuring that issues are addressed in real time and that processes remain aligned with evolving regulatory expectations.

Participant accessibility should be treated as a core planning consideration when implementing higher-assurance signature methods such as QES. Study teams should anticipate variability in participants' ability or willingness to complete identity verification steps required for QTSP registration and proactively design workflows that accommodate this diversity. This may include maintaining alternative pathways, such as paper-based signatures, to support inclusive participation. In practice, hybrid consent models wherein different documents within the same study are executed using different signature modalities can provide the flexibility needed to align with both participant needs and regulatory expectations.

Measurable impact across sponsors, sites, and participants

For sponsors, the primary value of eConsent lies in improved inspection readiness, reduced consent related errors, and greater confidence in global trial execution. By shifting consent from a manual to a system-driven process, eConsent ensures that documentation is complete, version-controlled, and inspection-ready. Automated checks reduce the risk of missing signatures, incorrect forms, and incomplete workflows, systematic issues that have historically contributed to protocol deviations. In doing so, eConsent strengthens both study integrity and regulatory confidence, while also supporting improved recruitment and retention through a more engaging participant experience.

THE SHIFT



From manual to system-driven processes



37%
reduction in eConsent data errors

THE IMPACT



57%
reduction in critical and major consenting deviations

THE RESULT



Improved overall study quality



Enhanced participant experience



Conducted at IQVIA across 55 Separate trials



Proven across a wide range of studies

The impact on quality is particularly pronounced. Analyses of large datasets of consent-related deviations show that errors tied to re-consent and signature handling are among the most common sources of compliance risk. eConsent directly addresses these gaps through embedded controls, automated status updates, and transparent audit trails. The result is a shift from reactive correction to proactive prevention, with fewer deviations, reduced query volume, and more reliable amendment workflows.

For sites, these quality improvements translate into meaningful operational relief. Consent-related deviations are among the most resource-intensive issues to resolve, often requiring weeks of effort across multiple roles to investigate, document, and close corrective and preventive actions. By preventing these issues upstream, eConsent significantly reduces administrative burden, minimizing participant callbacks, re-signing activities, and monitoring follow-up. On a day-to-day basis, this allows site staff to focus less on documentation rework and more on patient care and study execution, while also reducing frustration and workflow disruption.

Equally important is the impact on the participant experience, as these platforms improve understanding and engagement by delivering content in a more accessible, structured format. This translates into stronger trial performance:

Source: IQVIA



100%

of patients report Complete Consent as easy to use



60%

cite improved understanding as a key benefit



74%

express a preference for eConsent over paper-based method

THE IMPACT



Higher retention



Lower dropout rates



Stronger trial performance



A better experience for all

Taken together, these outcomes highlight a critical shift for eConsent, positioning it as a foundational capability that improves the quality of clinical trials, reduces operational friction, and enhances the experience for all stakeholders. As adoption continues to expand, its role in enabling more reliable, scalable, and participant-centric research will only become more central.

Ready to determine the right electronic signature strategy for your global trials?

Visit iqvia.com/econsent to learn how to align AES and QES with your regulatory and study requirements.