Key Messages

Background and Context

Computable Biomedical Knowledge (CBK) is a form of knowledge that is machine-understandable and executable, enabling quick decision-making advice related to human health on a global scale. To maximize the potential of computable knowledge, it should adhere to the FAIR principles (Findable, Accessible, Interoperable, and Reusable), which ensure scientific data's effective discovery, access, and reuse. While there's a growing global trend in adopting FAIR principles, variations in their application exist due to technical and regulatory challenges. Switzerland stands out in global biomedical research with robust healthcare and institutions like the Swiss Institute of Bioinformatics contributing significantly to the field.

The Issue

Switzerland is navigating the alignment of its CBK and biomedical data to the FAIR principles, facing challenges in data management due to regulatory, cultural, and technical barriers. The primary concerns include:

- A hypercompetitive research environment.
- A fragmented stakeholder landscape.
- Technical challenges.
- Legal uncertainty.
- Ethical consideration.

Recommendations for Action

Swiss medical research is alreading striving to harmonize innovative information-sharing methods with appropriate legal and ethical practices. To further strengthen this, we recommend actions in the following four spheres:

- Systemic attribution mechanisms.
- Collaboration between biomedical researchers and legal experts.
- Standards and Technical FAIRifications.
- Ethical Framework for Biomedical Data

Implementation Considerations

Barriers to implementation include:

- Dominance of a hypercompetitive research mindset.
- Prevailing legal ambiguities & regional regulatory disparities.
- Technical fragmentation & lack of unified infrastructure.

Facilitators to implementation include:

- Emphasis on collaboration & open science.
- Comprehensive education & accessible resources.
- Existing initiatives and guidelines promoting standardization & ethics.