

xGen Cybernetics

**Clinical decision support systems in
medical genetics and predictive
medicine**

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Our complete solution is designed for::

- automatic generation of a list of genes for further genetic analysis, taking into account

- phenotypic features,
- family history,
- pharmacological preparations taken by the patient,
- and environment factors

- differential diagnosis of monogenic and microdeletion/microduplication syndromes

- automatic conclusion formation based on the results of genetic testing

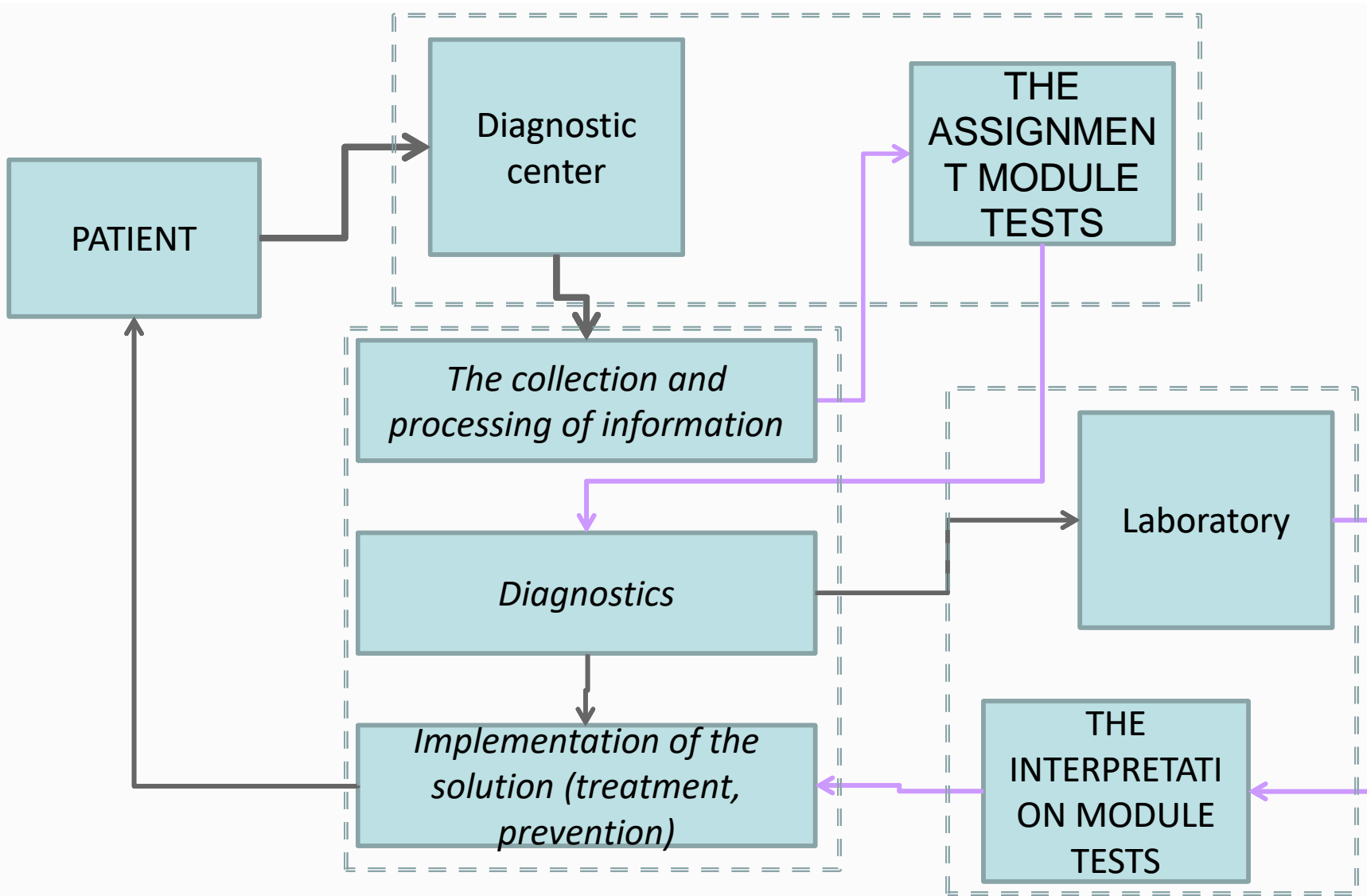
Comparison of approaches:

Traditionally:

- The dependence of quality on the qualification of the doctor.
- Long terms (from an hour to 2-6 weeks).
- High cost.

Using xGenCloud:

- High quality and stable results.
- Small terms (from 2-3 minutes...).
- Low cost.



xGenCloud

Service capabilities allow you to interpret:

- Gene variants:
 - target panels,
 - exome and full genome analysis,
 - sequencing
- Chromosomal abnormalities:
 - CGH
 - (microdeletions and microduplications, translocations)
- Epigenetic changes:
 - DNA methylation
 - gene expression (microRNA analysis)

Scheme of interpretation of the results of genetic testing on the example of DNA sequencing



Primary and secondary data analysis
DNA sequencing (FASTQ and BAM files)

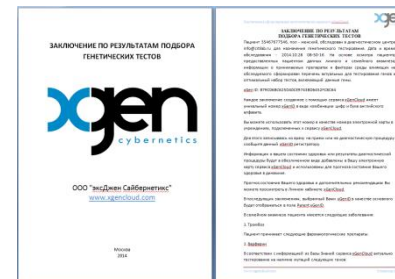
Assembly of readings, definition of variants
and filtration of genotypes by quality

MS Genomics

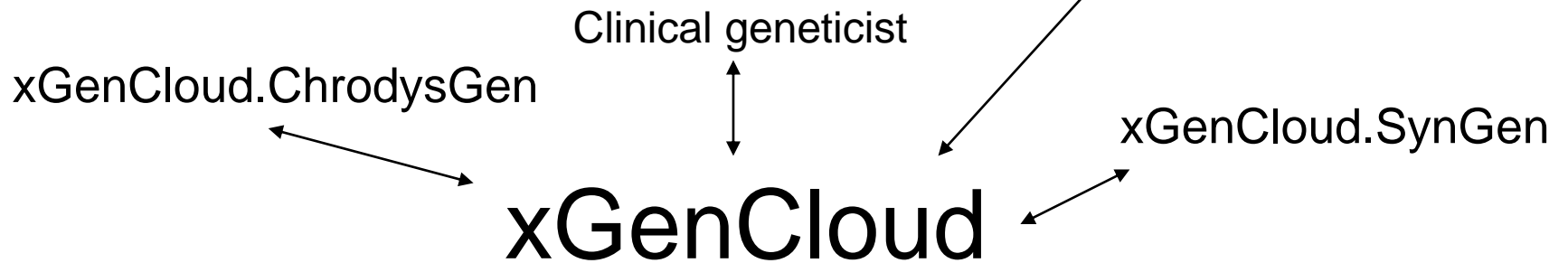
Clinical interpretation of options from VCF files

xGenCloud

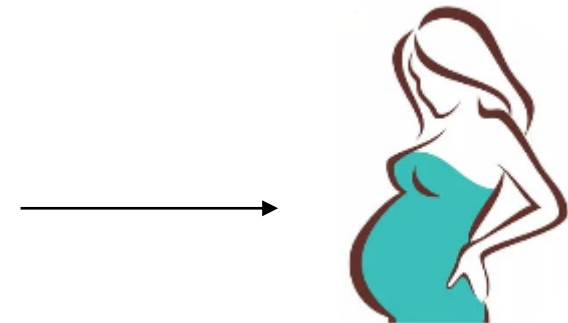
Automatic formation of scientific report or
pseudo-medical conclusions to adjust the doctor



Scheme of diagnostics and purpose of genetic tests



Automatic generation scientific report
or pseudo-medical conclusions for
correction by the doctor



xGenCloud

The decision support system allows physicians to perform real-time differential diagnosis of the following conditions:

- Monogenic diseases (more than 9000 syndromes).
- Chromosomal diseases (knowledge base includes more than 15 000 chromosomal aberrations with described clinic).
- Common diseases.

xGenCloud

- Licensing of medical activities to provide medical care to patients with congenital and hereditary diseases using xGen Cybernetics solutions.
- The solutions developed by our company in the field of medical genetics meet the requirements of the Procedure for providing medical care to patients with congenital and hereditary diseases and can be used for licensing activities in medical genetics (Order of the Ministry of health of the Russian Federation of November 15, 2012 №917n, <http://docs.cntd.ru/document/902385270>).
- xGen Cybernetics has a successful practice of using our software solutions for the differential diagnosis of syndromic forms of pathology for the licensing of "medical genetics".

xGenCloud competencies

- Genetics
- Reproduction
- Obstetrics and gynecology
- Hematology
- Immunology
- Pharmacology
- Nephrology
- Ophthalmology
- Oncology
- Infectious disease
- Andrology
- Endocrinology
- Neurology
- Gerontology
- Cardiology
- Dermatology
- Gastroenterology
- Psychiatry
- Addiction
- Dentistry