GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 12, Issue 6 June (2024)

THE IMPORTANCE OF INFORMATION TECHNOLOGY IN PEDIATRIC PRACTICE

Noraliev I. A.
Department of Pediatrics, Faculty of Medicine, ASMI

ABSTRACT

Information technologies in pediatrics have found quite wide application in various areas in the previous period of development (preventive examinations, diagnostics, electronic medical records, specialized registries). At present, the prospects associated with the transition to e-health and person-centered data integration are clearly visible. Electronic medical records, when built in a modular manner, will ensure the formation of various problem-oriented registers based on information initially entered once. Portable electronic devices used at home, with data transmission to processing centers and attending physicians, will allow for constant monitoring of the health status of certain groups of children and prompt response to critical changes in monitored physiological parameters.

Keywords: children, electronic medical record, e-health, registers, medical decision support systems, person-centered approach

INTRODUCTION

In retrospect, one can see how the emphasis in the use of information technologies in pediatrics has changed: computer systems to support medical decision-making, multidimensional data analysis, mathematical models, automated workstations and information systems of different types and levels (medical records , departmental, institutional, territorial systems, integration of clinical, laboratory and radiological systems, specialized federal registers). In the initial period of application of mathematical methods in pediatrics, the main attention was paid to quantitative analysis of the risk of developing chronic diseases, threatening measurements in acute diseases, operational and in-depth analysis of infant mortality; the beginning of computer diagnostics and prognosis of diseases was laid.

MATERIALS AND METHODS

Currently, we are experiencing a kind of revolution in approaches to informatization in healthcare, associated with the creation of a Unified State Information System in healthcare, briefly called Uniform State Health Information System, the implementation of which should ensure the transition to a unified medical information space. This corresponds to the documents adopted by the World Health Organization - the Global Strategy for Health for All and the Concept of Electronic Health (eHealth).

Let us briefly consider what informatization of pediatrics has achieved to date and what we expect from it in the near and longer term.

RESULTS AND DISCUSSION

Electronic medical record

The key component of the modern e-health system is the electronic medical record - a kind of information system, the main sections of which were approved by the Minister of Health of

Russia V.I. Skvortsova. Today, this concept unites all pre-existing medical records and patient histories. A certain set of data collected from individual electronic medical records will make it possible to create a database of integrated records in the federal resource, which will contain the most significant information about the health status of each patient (vital data, chronic diseases, medications used, drug intolerance and etc.).

Supporting the medical decision-making process

In clinical practice, decision support systems are designed to assist doctors making decisions in the field of diagnosis, treatment and prognosis of the course (complications) of the disease. To do this, various computational procedures or relatively limited "reasonable decisions" and logical reasoning are used, which are formed using systems based on the knowledge of medical experts. Until relatively recently, such systems functioned as autonomous systems at computerized workstations of doctors.

However, of particular interest is the integration of decision support modules or computer-assistive software into clinical information systems or electronic medical records, as can be demonstrated by the example of the American Siegfried system used in pediatrics [3].

Person-centered approach

Currently, data on the health status of the population is dispersed across numerous medical institutions that provide assistance in the prevention and treatment of diseases. A striking example of this is the child health care system, which includes antenatal clinics, maternity hospitals, children's clinics, specialized centers, hospitals and other institutions that accumulate data on the ante- and postnatal development of the child, including family predisposition to diseases and regularly changing negative impacts of the surrounding micro- and macro-social environment. Risk factors determine the threat of developing chronic diseases. At the same time, there is no doubt about the need to integrate all the accumulated data. This is answered by a person-centered or person-oriented approach [1].

Registers and health monitoring in e-health

Specialized or problem-oriented information systems in clinical practice are usually called registers (from the English register), the first of which was a genetic register. Currently, we can identify several of the most common areas in creating registers for monitoring and analyzing the health status of children, starting with monitoring pregnant women. Systems are being created for hereditary diseases, in which timely treatment is the key to preventing the development of severe disabling conditions.

Examples include the following registers:

- step-by-step monitoring of the course of pregnancy [3];
- birth defects in newborns to provide early interventional therapy;
- vaccinations and immunizations;
- children with individual diseases or groups of diseases (tuberculosis, diabetes mellitus, pulmonary hypertension, infectious diseases).

eHealth Perspective

In the near future, the development of informatization cannot be considered outside of the ongoing transition to electronic medical records. This is the way to organize constant monitoring of the health status of the country's children's population at a fundamentally new technological level of e-health. Availability of information from electronic medical records of

children will ensure complete continuity in the monitoring and treatment of patients. Achieving this will be possible due to the fact that the basic or central electronic medical record at the federal level will be linked via links to regional centers for processing and storing electronic medical records and to databases of medical organizations. This will allow doctors of any medical organization and remote consultants, if necessary, to receive all the necessary information for any period of the child's life: the results of previous examinations (including digital radiological images), information about previous and existing diseases, previous treatment and etc.).

A fundamentally new direction in the health care system is mobile health (mHealth), which is an integral part of eHealth. It is based on the concept of remote monitoring of physiological indicators of the body at home (or in other places) using mobile portable devices for recording and transmitting blood pressure, heart rate, ECG, glucose, and oxygen levels to the medical center. , external respiration functions, etc. Based on this information, it is possible to organize constant monitoring of the condition of children at risk and suffering from various diseases, issuing recommendations, including the need for examination by the attending physician or taking emergency measures by emergency medical teams.

CONCLUSION

New information technologies, when used comprehensively in pediatric practice, should ensure "working ahead" (risk, prognosis, etc.). The current stage of healthcare informatization forms the basis for the transition to a fundamentally new level of large-scale clinical and scientific research in pediatrics, when almost any sample of medical data will be available.

REFERENCES

1. Vorontsov I.M., Shapovalov V.V., Sherstyuk Yu.M. Health. Experience in developing and justifying the use of automated systems for monitoring and screening diagnostics of health disorders. St. Petersburg: IPK Kosta LLC, 2016; 432.
2. Sharapova O.V., Tsaregorodtsev A.D., Kobrinsky B.A. All-Russian medical examination: main trends in the health of children. Ros Vestn Perinatol i Pediatrician 2014; 49:1:56–60.
3. Budkevich L.I., Kobrinsky B.A., Podolnaya M.A. and others. Electronic medical history to support medical decisions for burn injury in children. Vestn new med technol 2018; 2: 232–233.
4. Dolotova D.D., Shurova L.V., Kobrinsky B.A., Budkevich L.I. Using computational methods and an expert approach to determine the type of post-burn scars. Ros Vestn Perinatol i Pediatrician 2014; 59:1:88–92.
5. Kobrinsky B.A. Medical information systems: convergence and integration based on the person-centered paradigm. Int. Forum "Information Technologies and Society 2016". M.: Forsicon LLC, 2016; 68.