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Medical informatics department

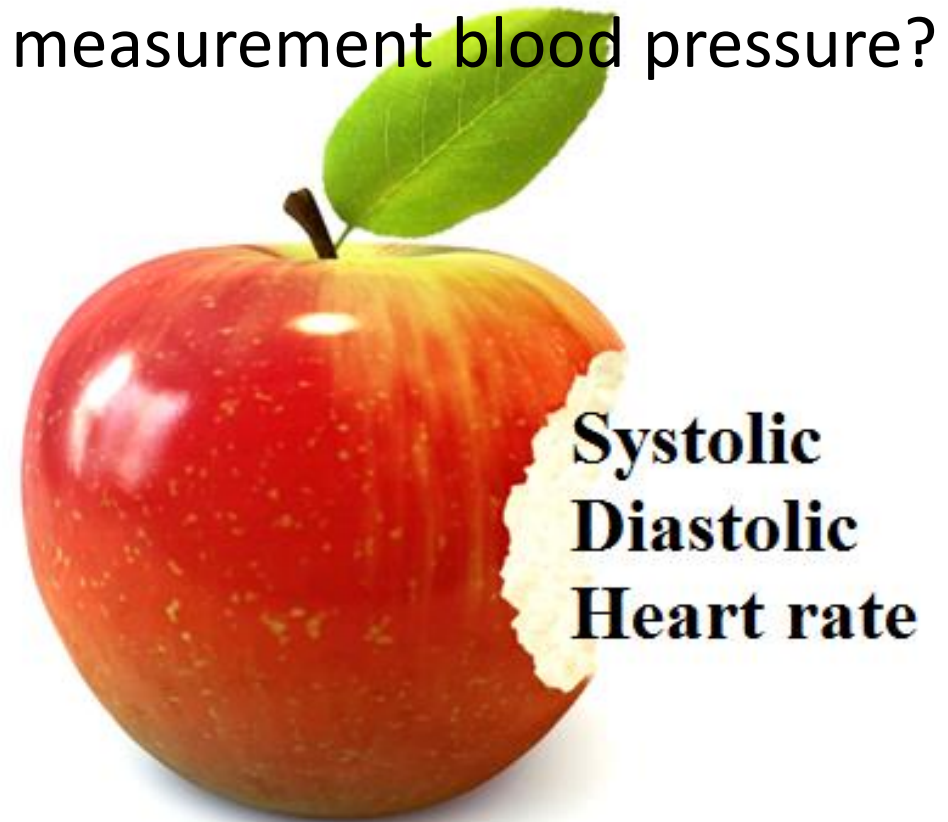
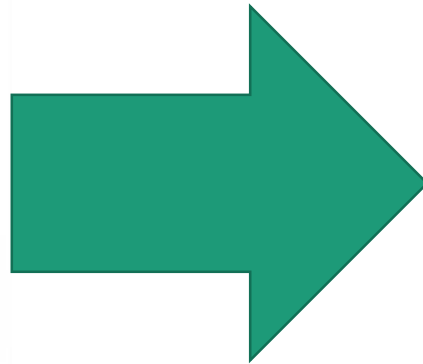
# Arterial Oscillography for diagnostic, research, implementation

DSc, Phd Dmytro Vakulenko

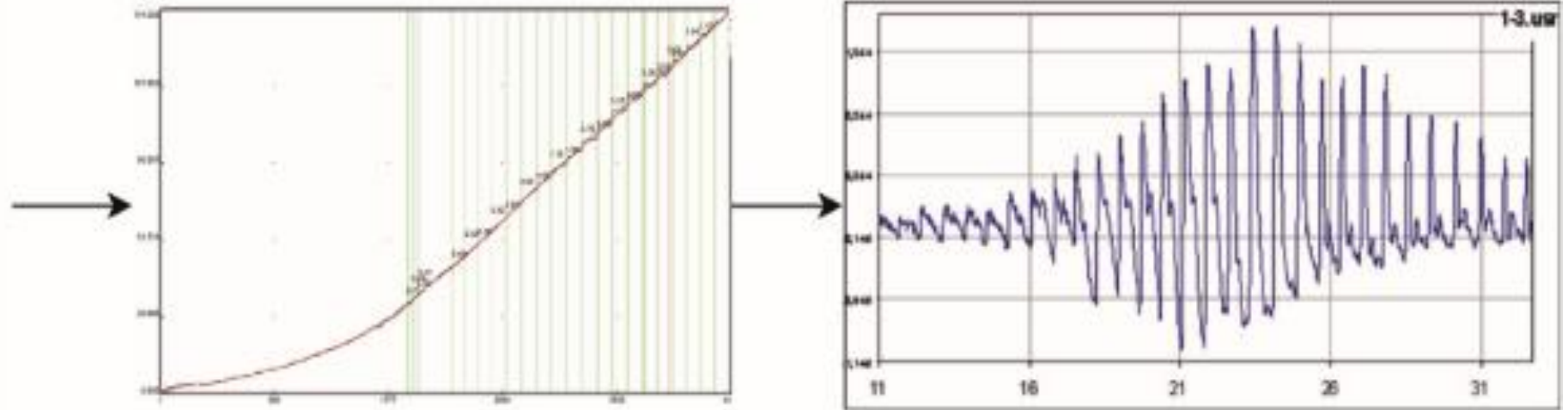
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# Motivation

- According to the World Health Organization each year cardiovascular diseases (CVD) cause the death 17.5 million persons; it is 31% of all deaths worldwide.
- Blood pressure are measure each
- Are we get all available information continue measurement blood pressure?

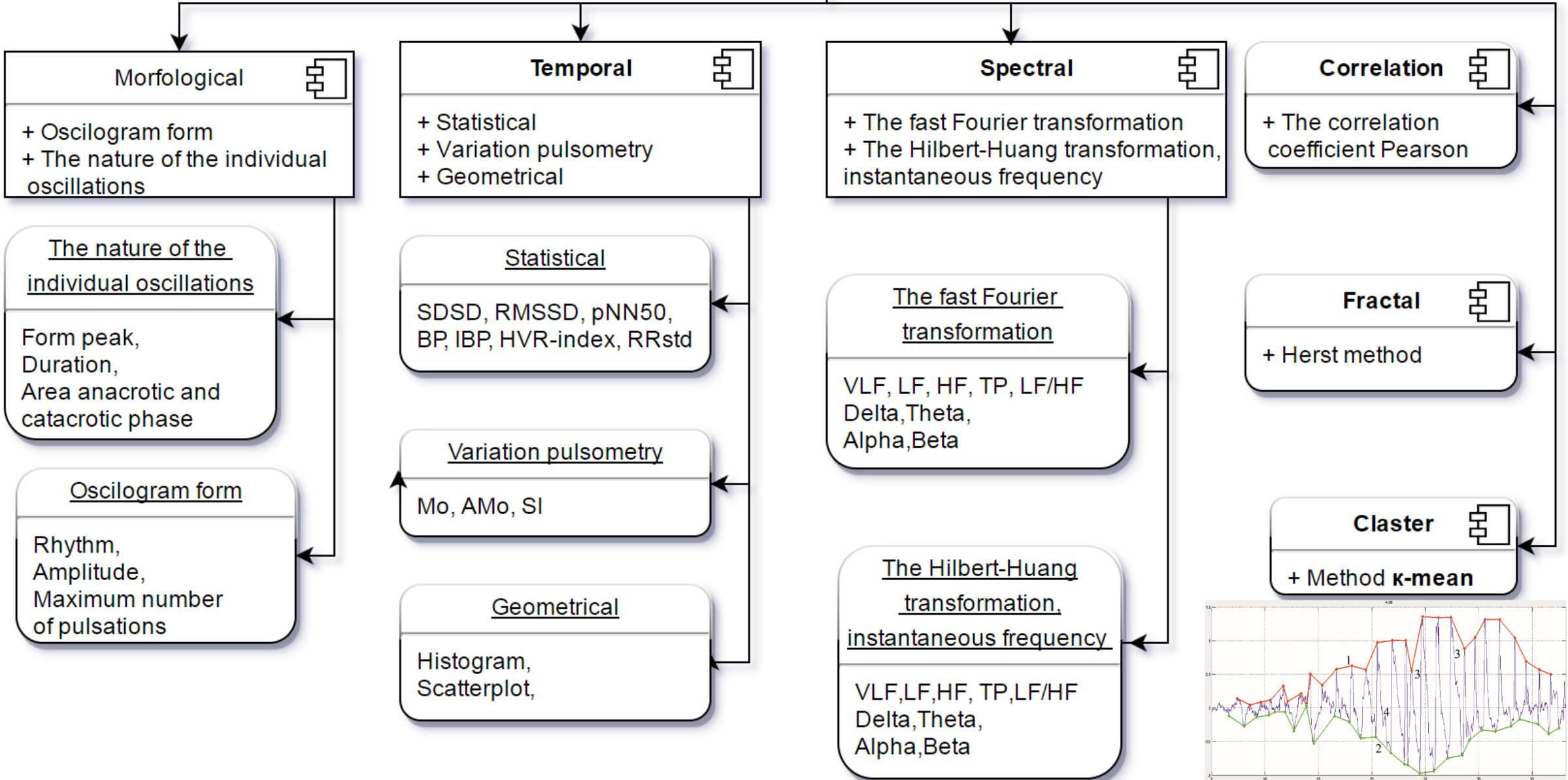


# Arterial Oscillography



Compressor & vessels activity

# Oscillogram analysis methods



# Research

- The results of our research are based on survey during 2012–2016.
- 696 people - volunteers were research - healthy 380 person and with different disease 316 patient.
- 28 different kind experiments are did (physical examination (Ruffe test, orthostatic test and etc.), rehabilitation activity (massage, Nuga-best, Reyki, qigong), different multimedia intervention).
- Parallel wrote Arterial oscilogram, ECG, reogram, pulsogram.
- The research was approved by the local Commission on Bioethics and performed due to the Patients' consent from each.

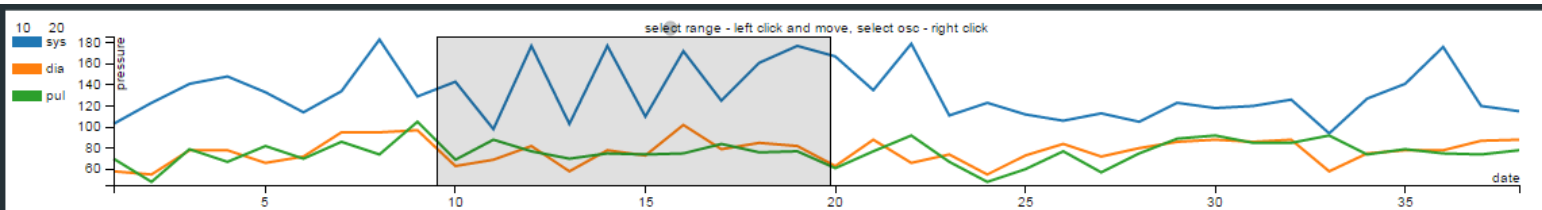
# APPROACH TO ARTERIAL OSCILLOGRAM ANALYSIS MAKES IT POSSIBLE TO KNOW

- Function state of shoulder vessels
- Level of regulation and control of cardiovascular system
- Activity and interaction of various parts of nervous system
- The state of myocardial-haemodynamic homeostasis functioning
- Adaptive capabilities of circulatory system
- Response of shoulder blood vessels to compression cuff

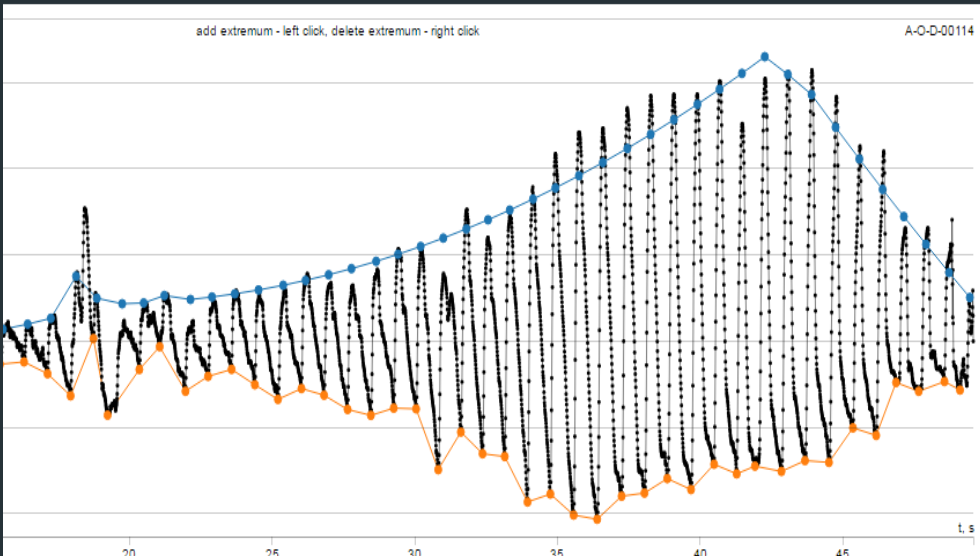
We have legalized Arterial oscillography methods in Ukraine by approval of methodological instruction by the Ministry Health of Ukraine

# Web application for Arterial oscilography

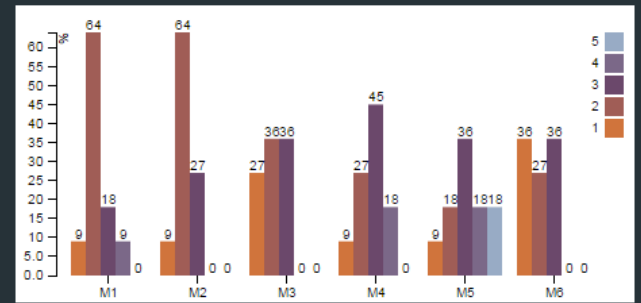
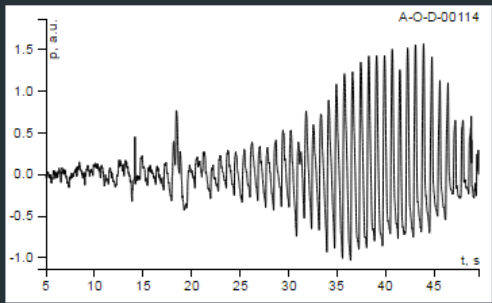
For patient, family doctors and cardiologist



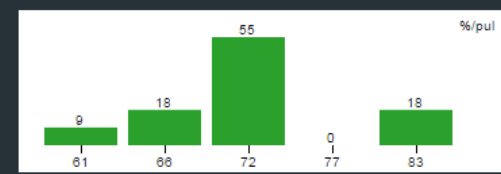
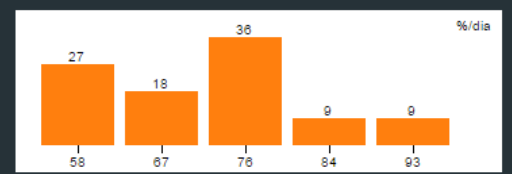
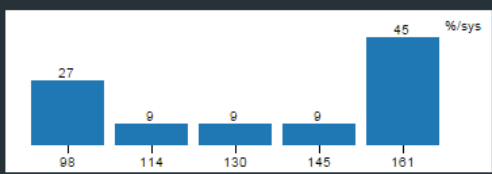
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Parameter	Value
Systola	172
Diastola	102
Pulse	75
M1-Adaptation quality	3
M2-Arrhythmia	3
M3-Vascular tone	3
M4-The level of excitability	4
M5-The elasticity of vessels	3
M6-Pulse capability	3



Date	Enable	Name	Sys	Dia	Pul	Medicine	Comment
1	<input type="checkbox"/>	A-O-D-006	103	58	70	test	test
2	<input type="checkbox"/>	A-O-D-008	123	55	48		
3	<input type="checkbox"/>	A-O-D-009	141	78	79		
4	<input type="checkbox"/>	A-O-D-00114	148	78	67		

Indicator	Sys	Dia	Pul	M1	M2	M3	M4	M5	M6
Mean	146	76	75	2	2	2	3	3	2
Max	177	102	88	4	3	3	4	5	3
Min	98	58	61	1	1	1	1	1	1
Std	31.82	12.50	7.19	0.79	0.60	0.83	0.90	1.25	0.89

Example report

# Propose for collaboration

- 1. For the mass and small-scale production of electronic blood pressure monitor household use, for doctors, experts and researchers.
- 2. The software makes it possible to analyze individual waveforms (ECG, and pulsograms and rheograms, other) and groups of mentioned biosignals. Software package can be adapted to multisignal daily monitoring devices and medical information systems. The proposed information technology can be implemented in mobile device operating system that supports java applications and web application.  
2. To analyze the research in the assessment of cardiovascular system, the impact of investigated medication and other factors on the CAS in general and in particular peripheral vascular and adaptive capacity of the organism.



Tank you for attention

Welcome for collaboration

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