Новые информационные технологии в медицинском образовании

Проф. О.С.Медведев
Факультет фундаментальной медицины
МГУ им. М.В.Ломоносова

Красноярск - 2015

Records from European Medical Schools at ECFMG Programme by Country: Performance Data of Applicants to ECFMG

James A. Hallock, MD
President and Chief Executive Officer
Educational Commission for Foreign Medical Graduates (ECFMG®)
Philadelphia, PA, USA

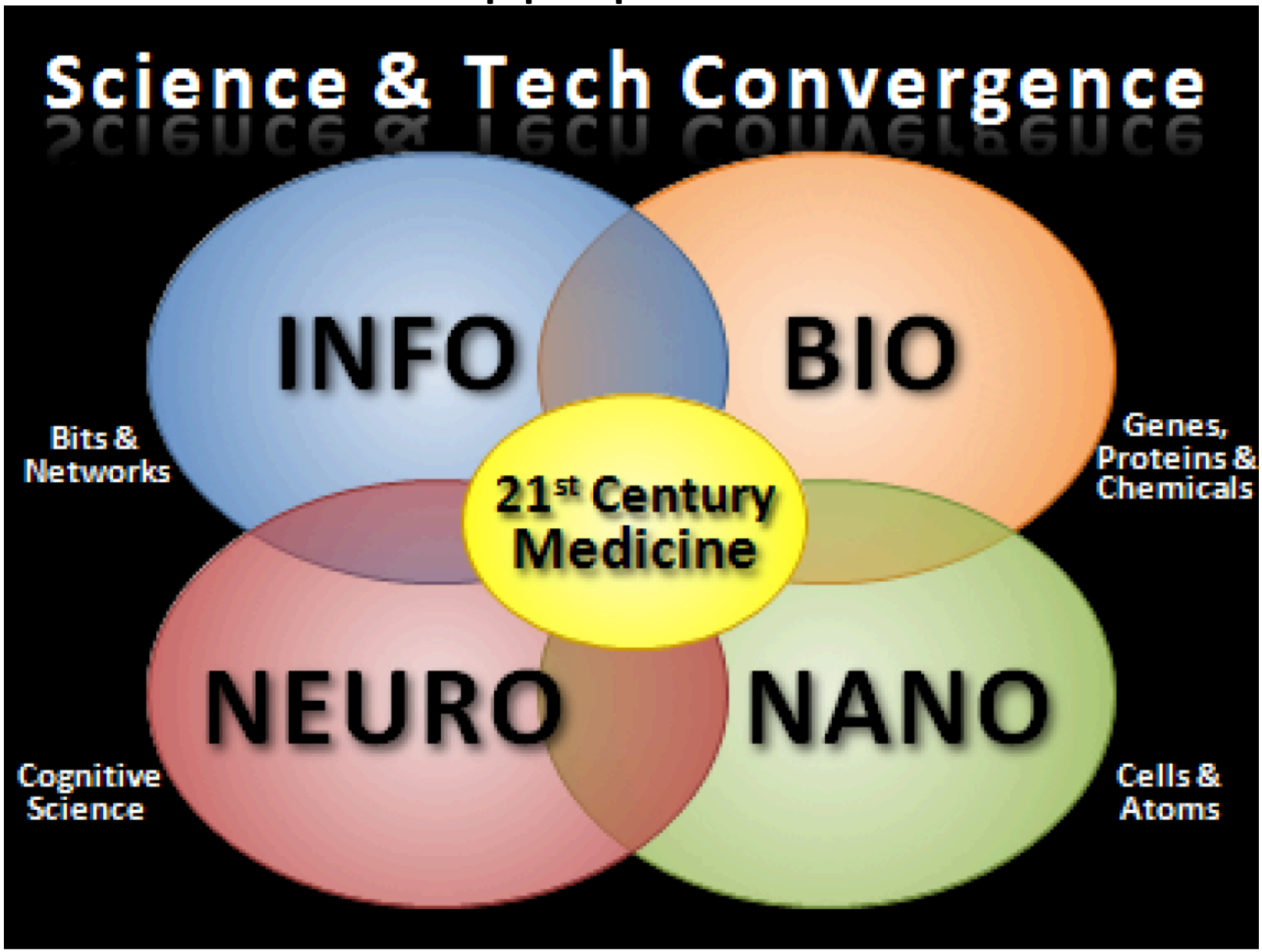
Presented at the Association of Medical Schools in Europe Annual Conference, Barcelona, Spain, June 7, 2008

http://www.amse-med.eu/files/hallock_amse_2008.pdf

First Attempt Pass Rates for Selected European Medical School Countries

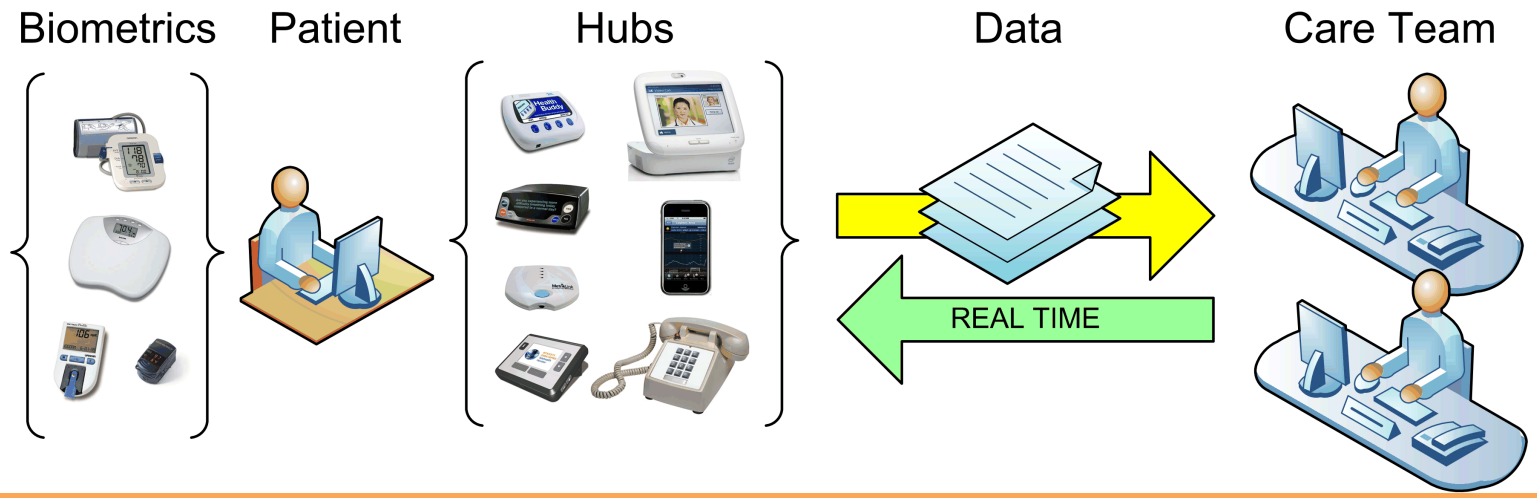
Medical School Country	# Applicants	Basic Science	Clinical Knowledge	Clinical Skills
Germany	7488	74%	78%	89%
Hungary	1601	62%	60%	79%
Ireland	3366	68%	84%	96%
Italy	1757	49%	40%	66%
Poland	2582	52%	58%	84%
Romania	3385	65%	62%	80%
Russia	3814	42%	57%	81%
Spain	790	70%	69%	76%
Turkey	2338	73%	67%	72%
Ukraine	1957	38%	52%	77%
United Kingdom	2907	79%	91%	99%

4 кита медицины 21 века



Мировой рынок мобильного здравоохранения – M-health

Remote Patient Monitoring

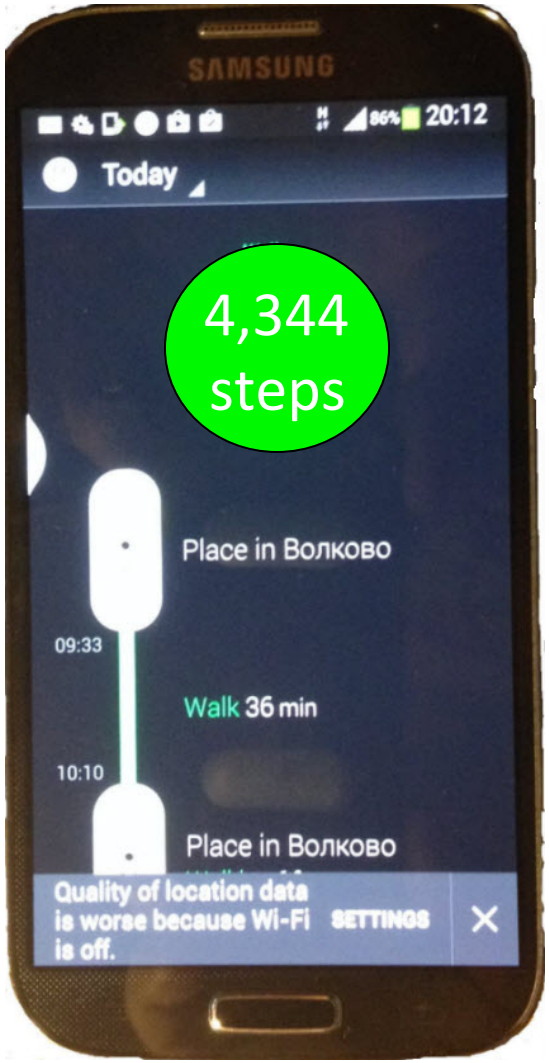


Modality	Pros	Cons	Comments
Telemonitoring	Better access 'Personalization' Early detection Fewer visits and hospitalizations Members love it	Data issues Integration issues Rules engine issues	Multimodal by population Team-based care Requires initial in-person visit

Обобщённая схема МДУ

Европейский каталог программ по M-Health

Moves Free App for iPhone and Android Smartphones for Activity Measurements



Мониторы физической активности в форме браслета

PC Mag, 2013, April 13

SENSORIA FITNESS SOCKS AND ANKLET

Шагомеры и измерители ЧСС фирмы JawBone и AlphaMio

Во сне и

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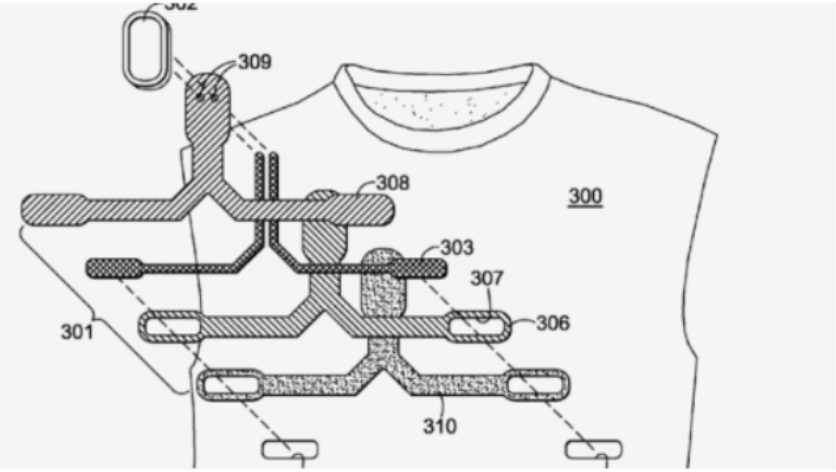
Токио 5 ч. 44 мин.
Сеул 6 ч. 01 мин.
Мехико 6 ч. 33 мин.
Пекин 6 ч. 35 мин.
Мадрид 6 ч. 39 мин.
Москва 6 ч. 42 мин.
Цюрих 6 ч. 44 мин.
Нью-Йорк 6 ч. 47 мин.
Берлин, Рим 6 ч. 49 мин.
Стокгольм 6 ч. 51 мин.

Стокгольм 8876
Лондон 8815
Нью-Йорк 8704
Цюрих 8378
Токио 8293
Берлин 8134
Мадрид 8117
Сидней 8116
Рим 8071
Москва 7885

В рейтинге городов с самой небольшой продолжительностью сна лидируют жители Токио: они спят всего 5 ч. 44 мин. в сутки. Столица Японии попала и в топ самых активных городов – токийцы делают в среднем 8293 шага в день. Аутсайдерами рейтингов стали мельбурнцы, спящие дольше всех в мире, и жители Сан-Паулу, которые очень не любят ходить пешком



FITNESS, HEART, SENSORS, WEARABLES

MULTIPLE MEASUREMENTS, INCLUDING BLOOD PRESSURE, FROM SHIRT SENSOR INSERT

JANUARY 1, 2015 LISAWEINER

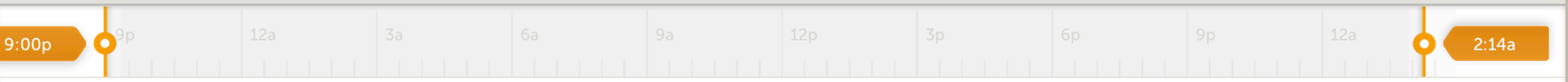
Nike was recently awarded a patent for a skin-touching sensor system that can be inserted into a shirt. It can measure heart rate, blood pressure, hydration, and skin temperature, and transmit the data over radio frequencies, Bluetooth and WiFi.

Часы фирмы Basis (США) для мониторинга ЧСС, двигательной активности, потоотделения, температуры кожи

www.mybasis.com

Activity Details

Sunday 1 Dec



BIOMETRICS

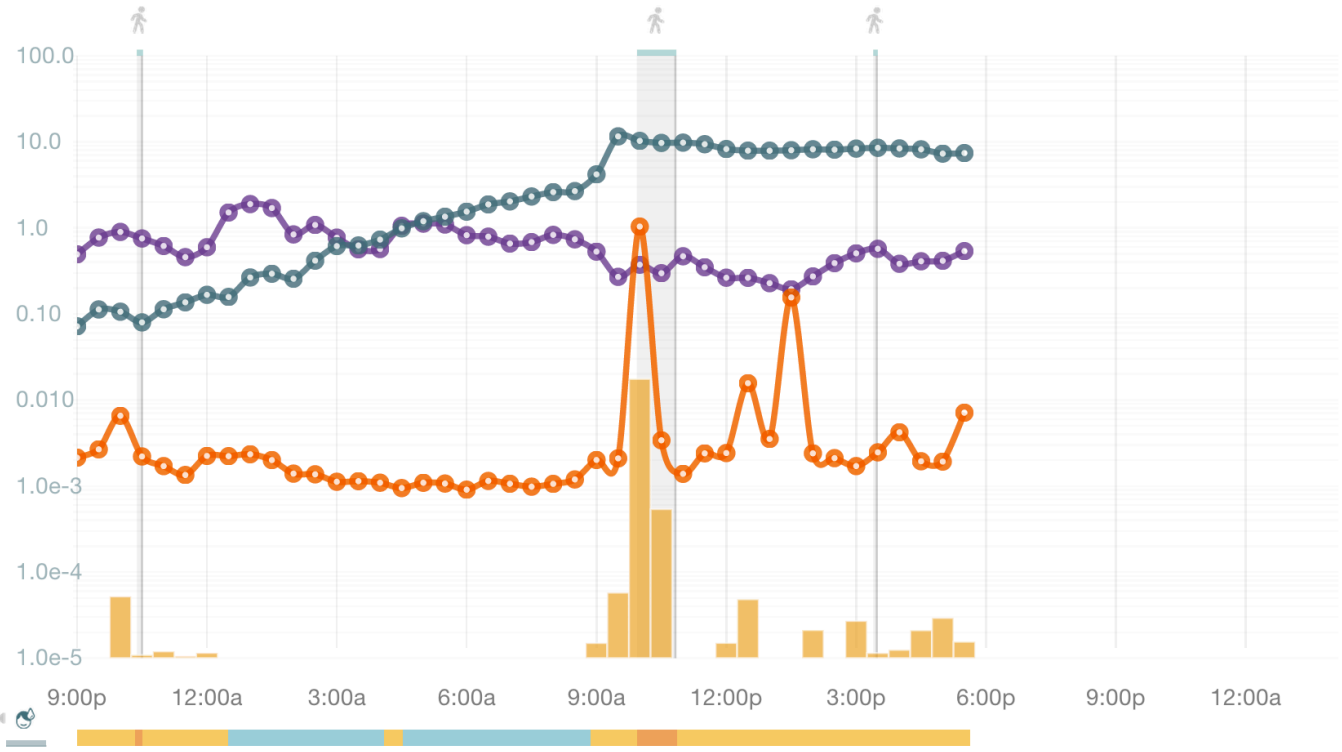
HEART RATE
65 avg ♥/min

STEPS
8227 👣
6 avg 👣/min

CALORIES

SKIN TEMP

PERSPIRATION



ACTIVITY

WALKING
5382 👣
84 avg 👣/min
1 hr 1 min total

RUNNING
0 👣
0 avg 👣/min
0 min total

BIKING
0 cal
0 avg /min
0 min total

Using Pedometers to Increase Physical Activity and Improve Health

A Systematic Review

Dena M. Bravata, MD, MS
Crystal Smith-Spangler, MD
Vandana Sundaram, MPH
Allison L. Gienger, BA

Context Without detailed evidence of their effectiveness, pedometers have recently become popular as a tool for motivating physical activity.

Objective To evaluate the association of pedometer use with physical activity and health outcomes among outpatient adults.

JAMA. 2007 Nov 21;298(19):2296-304.

Table 3. Use of a Step Goal

Alternatives	Sources[a]	Mean Change in Physical Activity From Baseline, Steps/d (95% Confidence Interval)	*P* Value
No step goal	14, 21, 22, 36	686 (–1621 to 2994)	.60
10 000 step/d goal	16, 19, 28-30, 33, 34, 37	2998 (1646 to 4350)	<.001
Other step goal[b]	13, 15, 17, 18, 20-24, 26, 27, 30-32, 35, 38, 39	2363 (1789 to 2936)	<.001

[a] Studies are included in more than 1 category because they compared 2 or more study groups that had different goals.
[b] Typically, these were based on incremental increases in daily steps over baseline.

JAMA. 2007 Nov 21;298(19):2296-304.

British Journal of Pharmacology
Volume 167, Issue 1, Article first published online: 3 AUG 2012
Abstract | Full Article (HTML) | References | Cited By

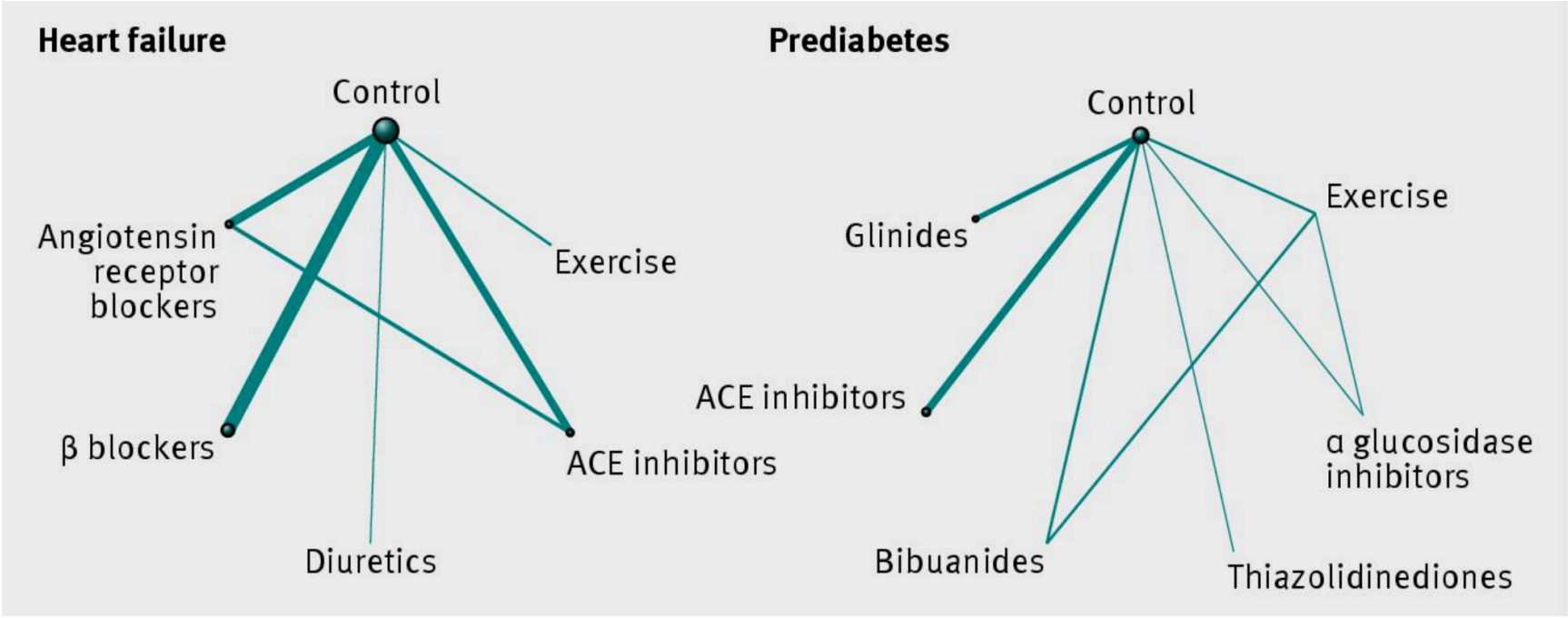
BJP British Journal of Pharmacology

REVIEW

Exercise acts as a drug; the pharmacological benefits of exercise

J Vina, F Sanchis-Gomar, V Martinez-Bello and MC Gomez-Cabrera

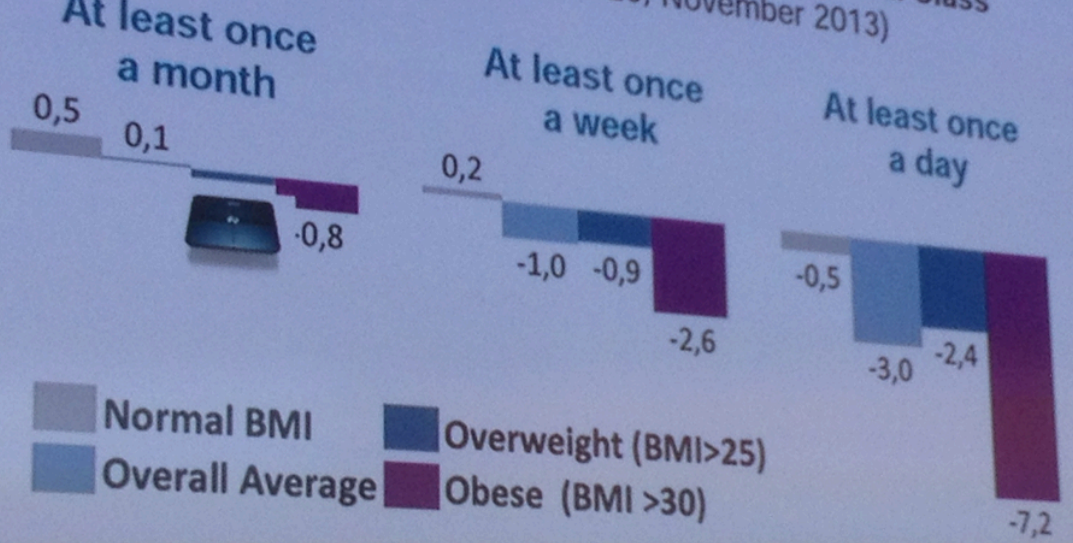
Department of Physiology, University of Valencia, Fundacion Investigacion Hospital Clinico Universitario/INCLIVA, Valencia, Spain


Heart failure
Control
Angiotensin receptor blockers
Exercise
β blockers
ACE inhibitors
Diuretics
Prediabetes
Control
Exercise
Glinides
ACE inhibitors
α glucosidase inhibitors
Bibuanides
Thiazolidinediones

Measures foster **results**

Withings
Inspire health

Weight Evolution by Weighting Frequency & BMI Class
(In Kg, US Users over 20, November 2013)



Note: Weight evolution is obtained by calculation the ratio of the average weight during the first month to the average 12th

You cannot improve what you don't measure

Panasonic

Nearest hot-point in m-health - Google Glass

Sergey Brin, Google

Google Glass Moves into the OR:

Skype's newest app will translate your speech in real time

By Tom Warren on December 15, 2014 09:55 am @tomwarren

"Hold on, I'm going to conference in my wrist."

Демо – Google Translate

Psychological Science OnlineFirst, published on January 20, 2015 as doi:10.1177/0956797614557867

Research Article

Psychological Science

Психологический анализ сообщений Твиттера позволяет предсказать региональную смертность от сердечно-сосудистых заболеваний

Johannes C. Eichstaedt[1], Hansen Andrew Schwartz[1,2], Margaret L. Kern[1,3], Gregory Park[1], Darwin R. Labarthe[4], Raina M. Merchant[5], Sneha Jha[2], Megha Agrawal[2], Lukasz A. Dziurzynski[1], Maarten Sap[1], Christopher Weeg[1], Emily E. Larson[1], Lyle H. Ungar[1,2], and Martin E. P. Seligman[1]

Слова, негативно коррелирующие с региональной смертностью от ССЗ

Занятия, требующие высокой квалификации

$r = -.14$

$r = -.17$

$r = -.17$

Положительные Эмоции

$r = -.14$

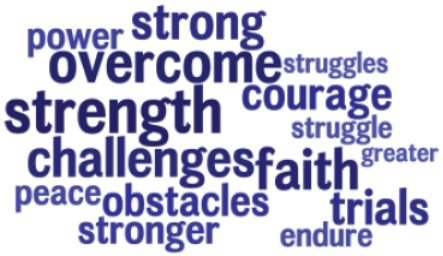
$r = -.15$

$r = -.15$

Выражения оптимизма

$r = -.12$

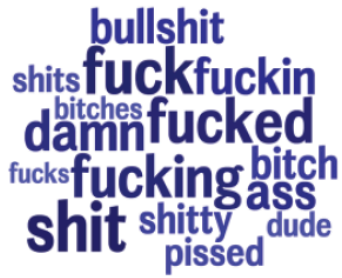
$r = -.13$



$r = -.13$

Слова, положительно коррелирующие с региональной смертностью от ССЗ

Враждебность, агрессия



$r = .18$

$r = .21$

$r = .27$

Ненависть, межличностные напряжения

$r = .16$

$r = .17$

$r = .21$

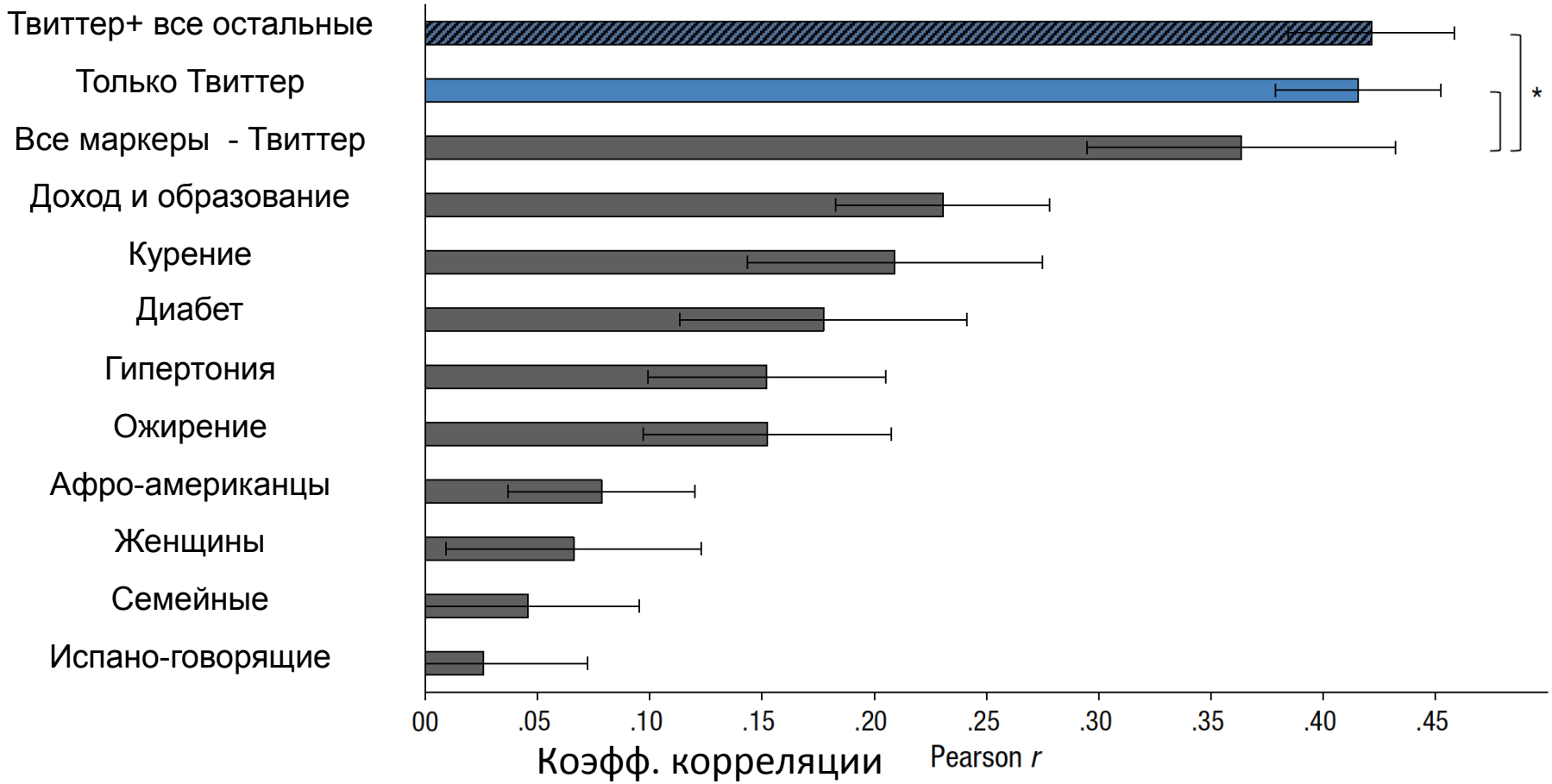
Скука, усталость

$r = .18$

$r = .18$

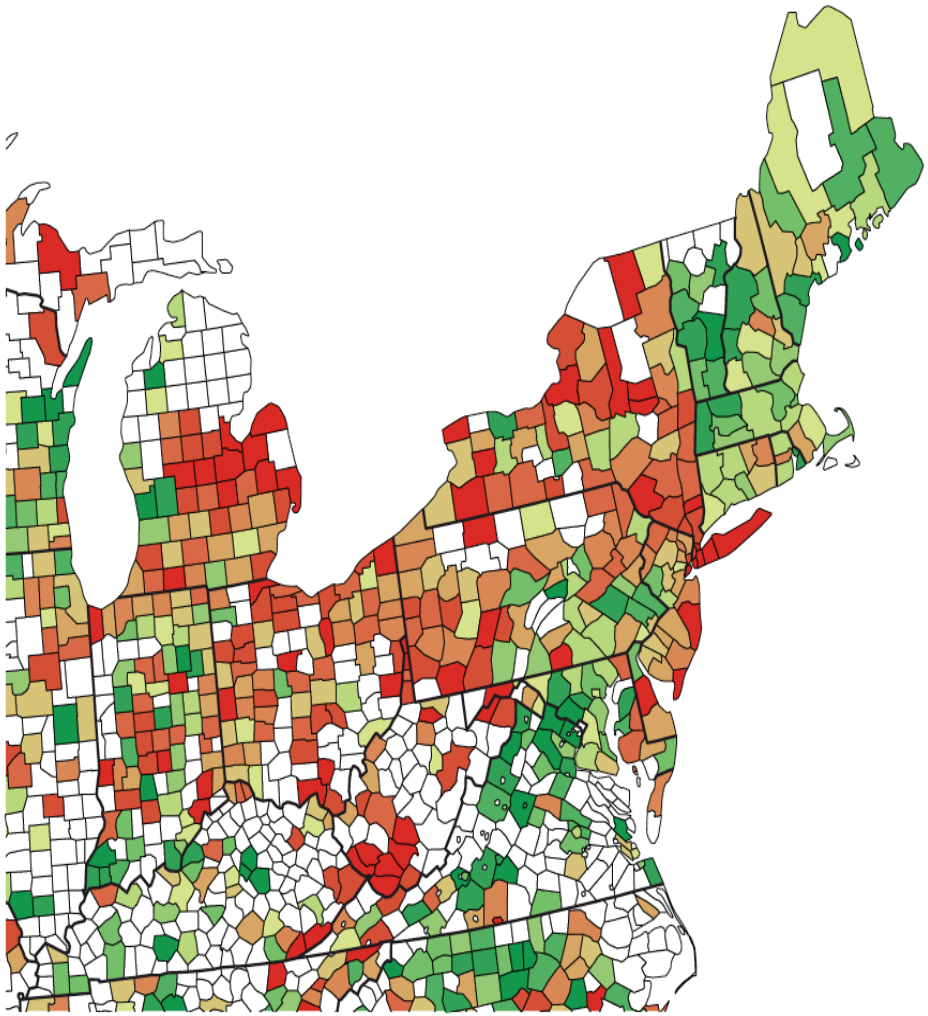
$r = .20$

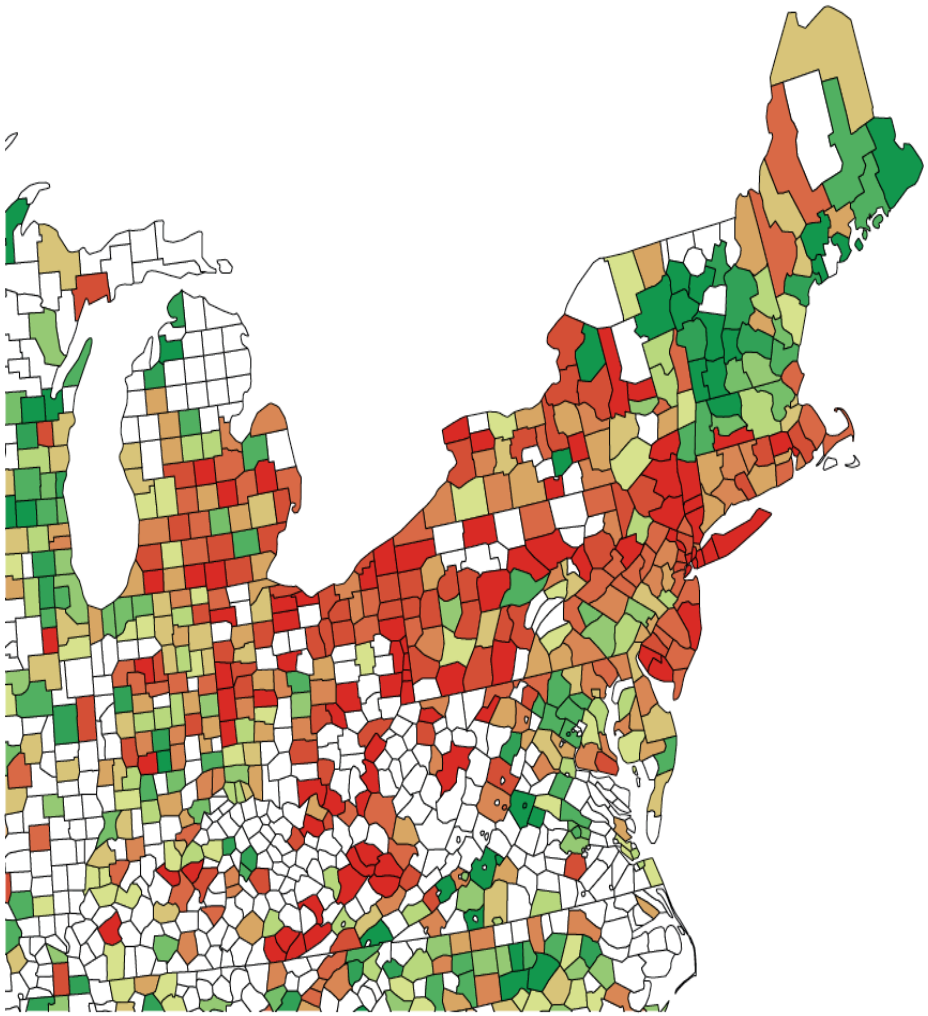
Корреляция между предсказанной и реальной смертностью от ССЗ

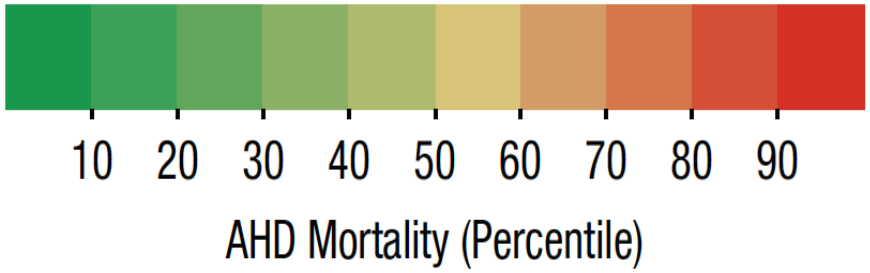


Смертность по данным CDC

Предсказанная смертность







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SPECIAL ISSUE

The End of PRIVACY

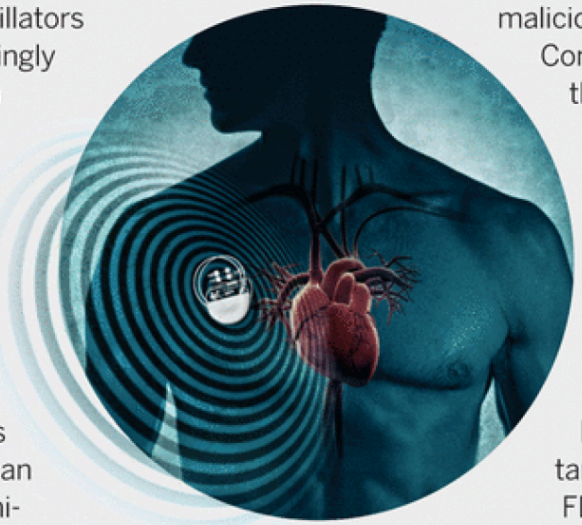
Could your pacemaker be hackable?

By **Daniel Clery**

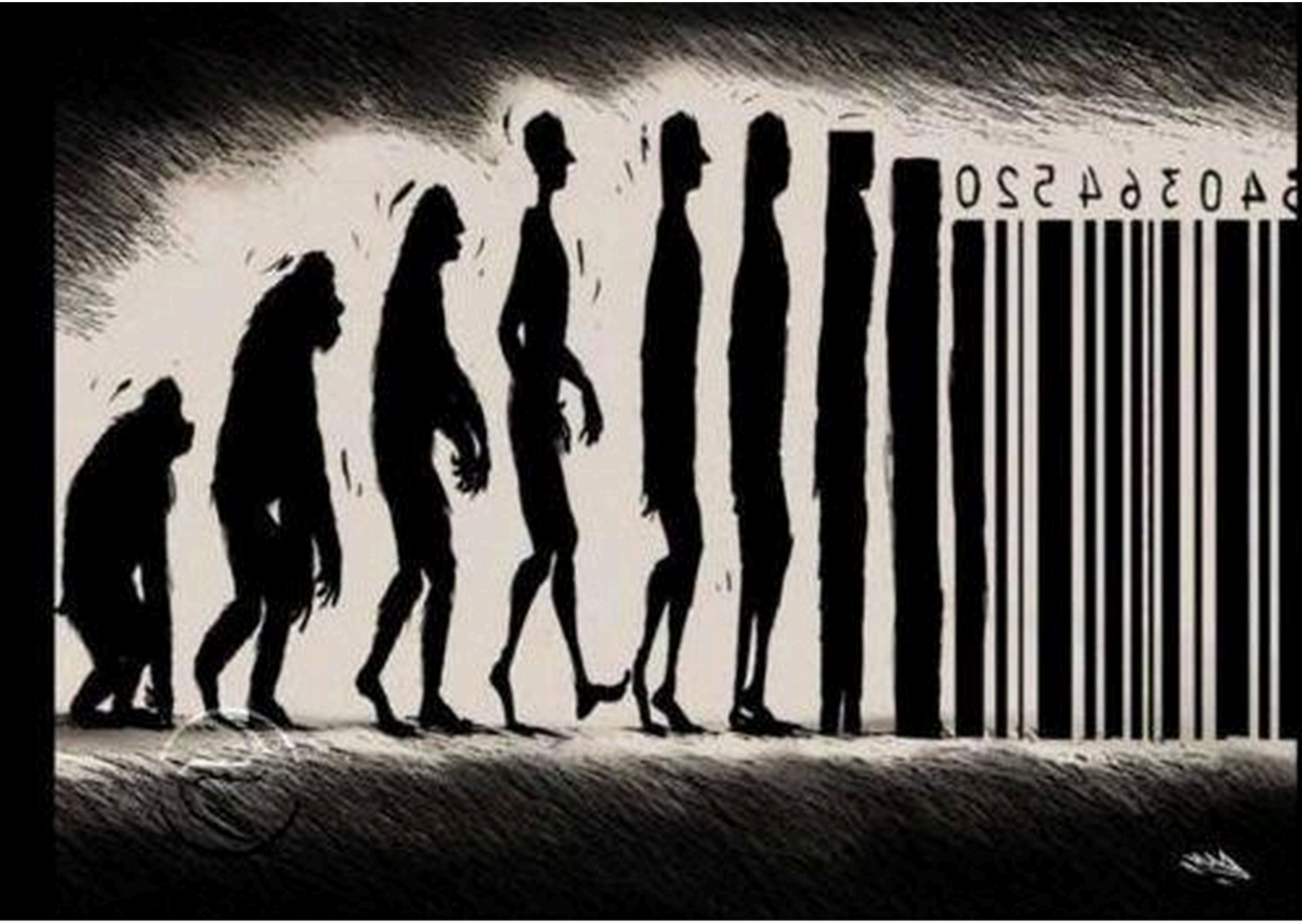
In a 2012 episode of the TV series *Homeland*, Vice President William Walden is assassinated by a terrorist who hacks into his Internet-enabled heart pacemaker and accelerates his heartbeat until he has a heart attack. A flight of fancy? Not everyone thinks so.

Internet security experts have been warning for years that such devices are open to both data theft and remote control by a hacker. In 2007, Vice President Dick Cheney's cardiologist disabled the wireless functionality of his pacemaker because of just that risk. "It seemed to me to be a bad idea for the vice president to have a device that maybe somebody on a rope line or in the next hotel room or downstairs might be able to get into—hack into," said the cardiologist, Jonathan Reiner of George Washington University Hospital in Washington, D.C., in a TV interview last year.

Medical devices such as insulin pumps, continuous glucose monitors, and pacemakers or defibrillators have become increasingly small and wearable in recent years. They often connect with a hand-held controller over short distances using Bluetooth. Often, either the controller or the device itself is connected to the Internet by means of Wi-Fi so that data can be sent directly to clinicians. But security experts have demonstrated that with easily available hardware, a user manual, and the device's PIN number, they can take control of a device or monitor the data it sends.



Medical devices don't get regular security updates, like smart phones and computers, because changes to their software could require recertification by regulators like the U.S. Food and Drug Administration (FDA). And FDA has focused on reliability, user safety, and ease of use—not on protecting against malicious attacks. In a Safety Communication in 2013, the agency said that it "is not aware of any patient injuries or deaths associated with these incidents nor do we have any indication that any specific devices or systems in clinical use have been purposely targeted at this time." FDA does say that it "expects medical device manufacturers to take appropriate steps" to protect devices. Manufacturers are starting to wake up to the issue and are employing security experts to tighten up their systems. But unless such steps become compulsory, it may take a fatal attack on a prominent person for the security gap to be closed. ■



Только сейчас руководство страны стало интересоваться M-health