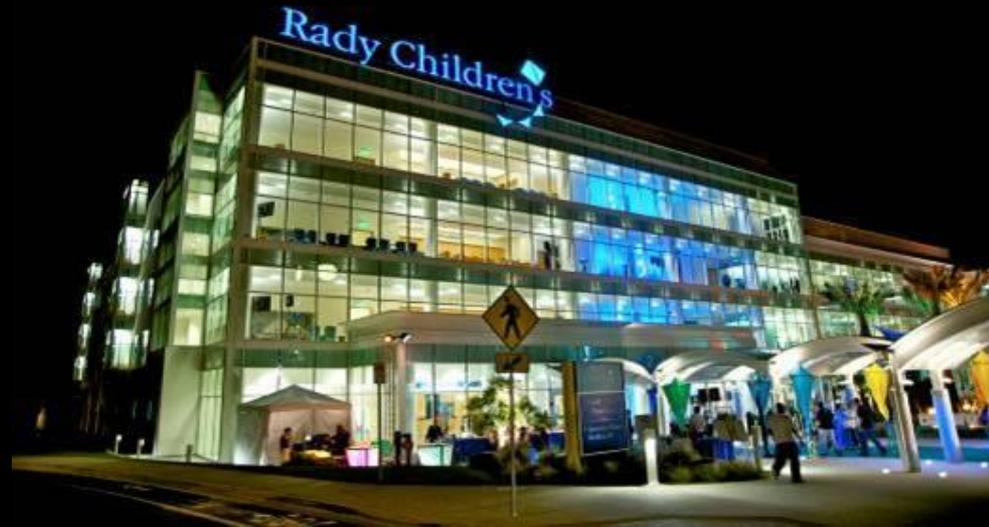
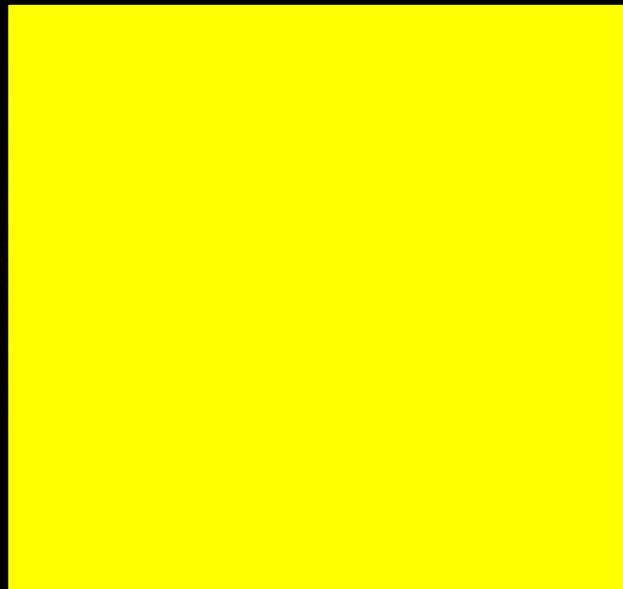
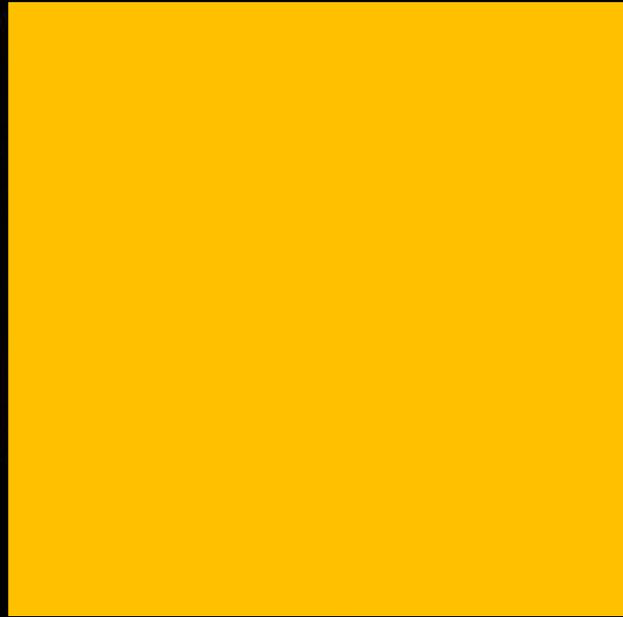
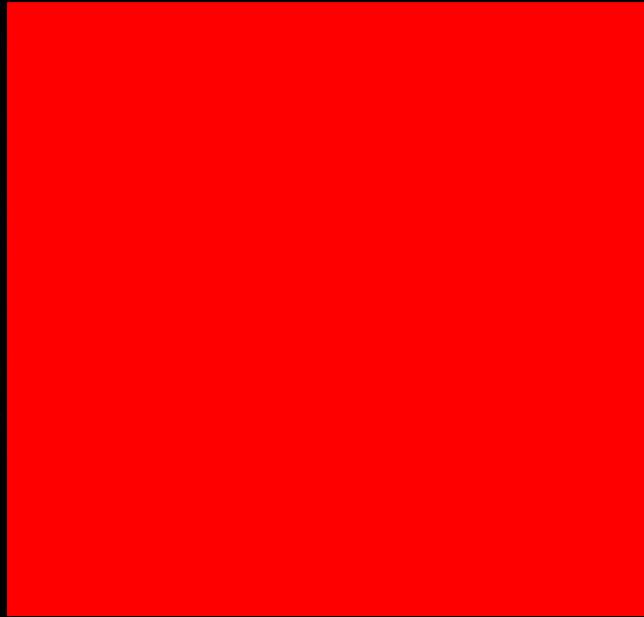
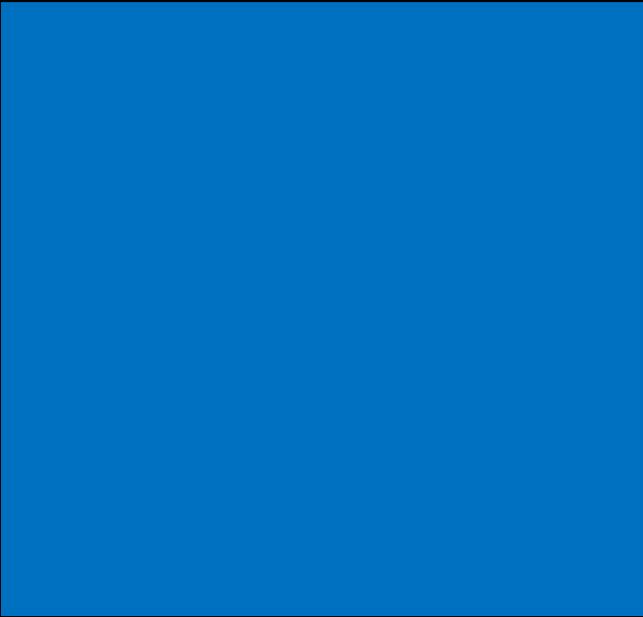


Transformación Digital

Rady Children's Hospital – San Diego



Líderes de TICs



Agenda

- Contexto: Rady Children's
- El camino interminable:
 - Archivos clínicos
 - Interoperabilidad
 - Implicación del paciente
 - Medicina personalizada
- Las claves de éxito
- ¿Y ahora qué?

Fin



-  Rady Children's Hospital
San Diego
Main Campus
-  Children's Primary Care
Medical Group
Office Locations
-  Rady Children's Specialists
of San Diego
Office Locations
-  Rady Children's Health Services
Urgent Care Centers
-  Rady Children's Health Services
Specialty Services
-  Rady Children's Hospital
Community
Inpatient Units

North Coastal Center

North Inland Center

Rady Children's
Hospital
Main
Campus

MURRIETA

TEMECULA

ESCONDIDO

LA COSTA

ENCINITAS

4S RANCH

CARMEL VALLEY

POWAY

LA JOLLA

MIRA MESA

KEARNY MESA

Rady Children's
Hospital
Main
Campus

LA MESA

EL CENTRO

EL CAJON

MID-CITY

CHULA VISTA

EASTLAKE

2016

551

camas

44

clínicas

92%

población

1 M

niños y adolescentes

250.0000

asegurados

\$1.100 M

facturación

5.200

empleados

816

pediatras

350

subespecialistas

466

primaria

1.500

enfermería

1.200

voluntarios

19.0000

altas

710.000

visitas

450.0000

primaria

260.0000

especializada

92.000

emergencias

55.000

urgencias

20.000

cirugías



Rady Children's





El camino interminable

2006



12
11 10 9 8 7 6 5 4 3 2 1

Rady
Children's

The
Rose Pavilion

302

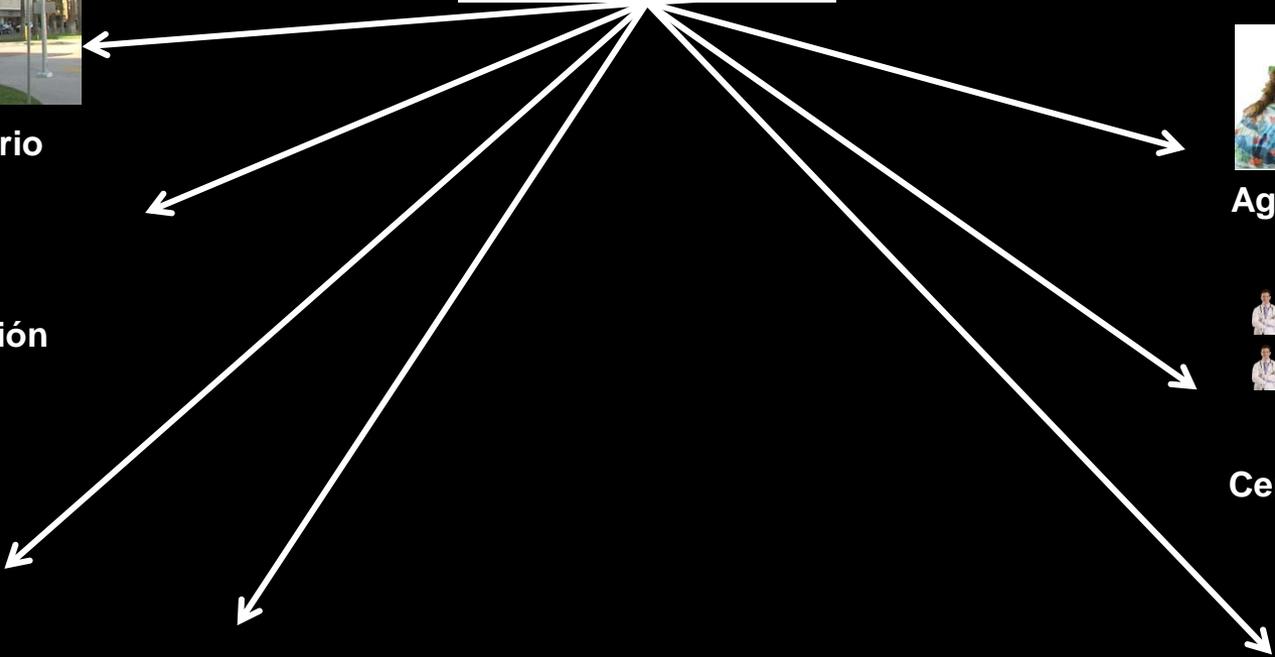
ENTRANCE



Hospital Cuaternario



Centro de Atención Ambulatoria: San Diego



Atención a Distancia



Agencia de Atención Domiciliaria



Centros de Atención Primaria: CPCMG



Servicios de Mejora de Salud Comunitaria



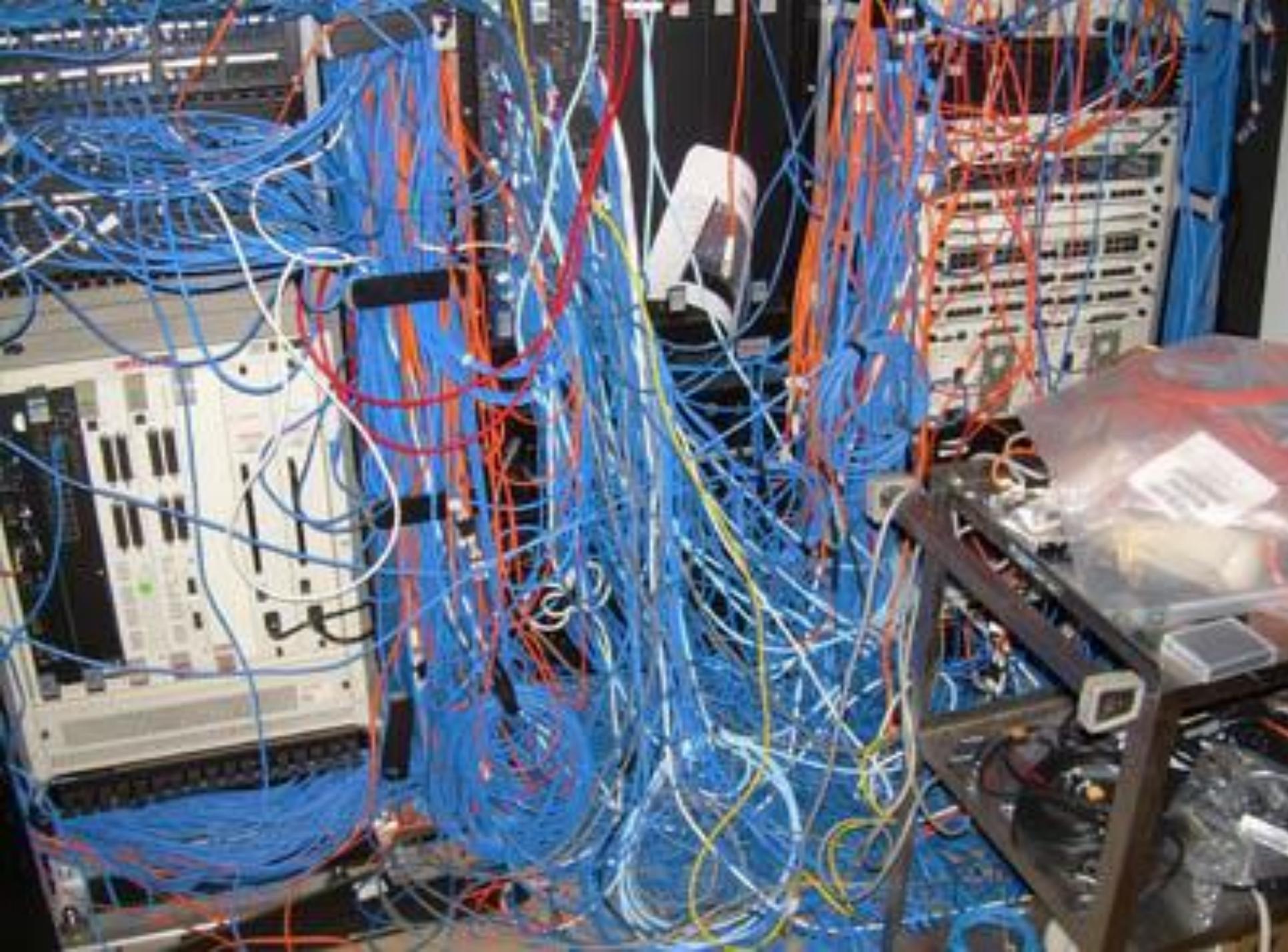
Centro de Urgencias: San Diego



UCINs Satélites: La Jolla, Encinitas



05 2 14







WANTED
HCC
Hospitalario
y
Ambulatorio

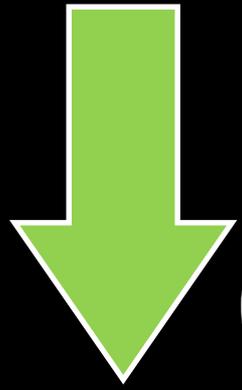
HCC

HCC

HCC

HCC





30%

Tiempo total
para limpiar
una habitación

Costes evitados

2

ETCs



\$2M



\$20K



57%



93%



54%

errores de administración
de medicamentos



5%



0,2%



"Caring for the future"

Rady Children's

Hospital
CHET Team

13899

80733D1

Rady Children's
Hospital
CHET Team
"Caring for the future"

CHET Kids Ambulance
and babies too!



WANTED
EMR
Hospitalario
y
Ambulatorio

HCC

HCC

HCC

HCC

2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

2.5M

archivos

1.300

hospitales

1.400

Deptos. emergencias

30.000

clínicas

49

estados





HCC

HCC



HCC

HCC





103

mg/dL

3-03-11 12:35 PM

OK





Stay Connected

to your child's health



HCC

HCC



HCC

HCC



2006

2007

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017



Duración de la visita



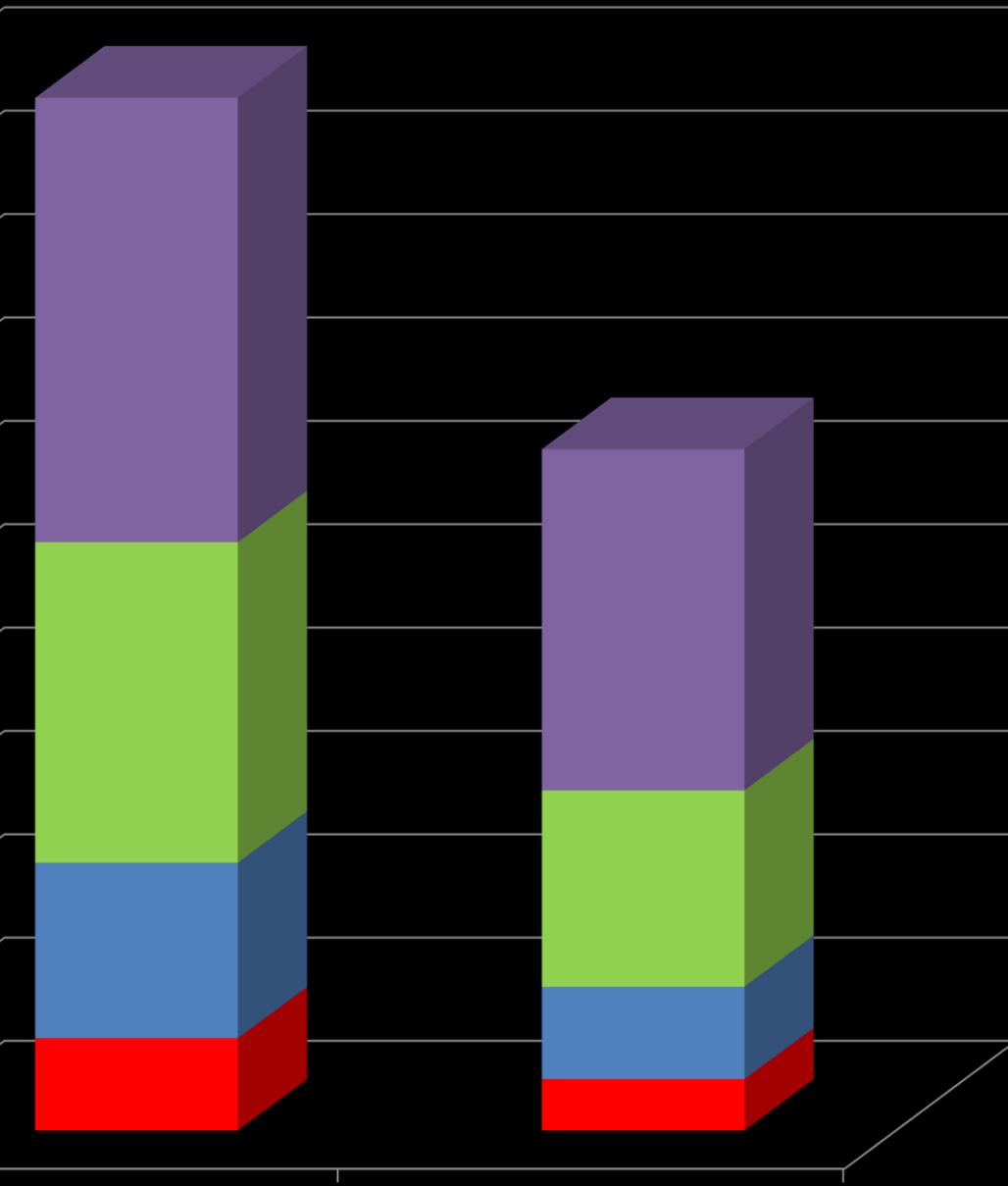
Minutos

100
90
80
70
60
50
40
30
20
10
0

Sin Cuestionario

Con Cuestionario

- Facultativo
- Espera en box
- Enfermería
- Sala de espera





HCC

HCC



HCC

HCC



2006

2007

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017





Epic

Epic



Epic

Epic



2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017



Telemedicina



Comité consultativo

Conferencias (Grand Rounds)

Seguimiento a distancia

Servicio interconsulta

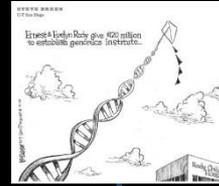
entre facultativos

Visita electrónica

a domicilio y consultas de otros especialistas







2006

2007

2008

2009

2010

2011

2012

2013

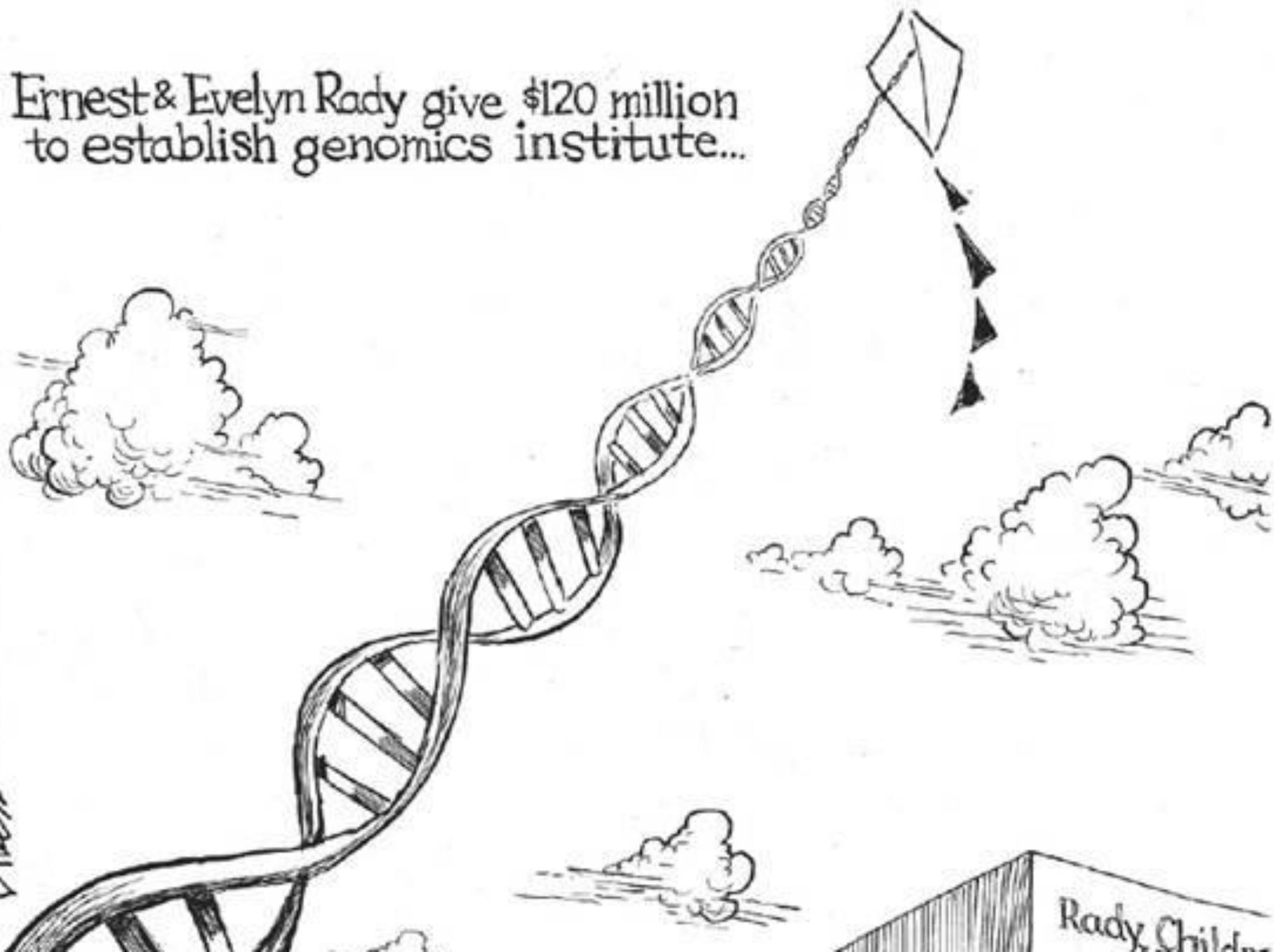
2014

2015

2016

2017

Ernest & Evelyn Rady give \$120 million
to establish genomics institute...





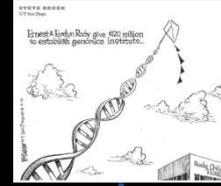
HCC

HCC



HCC

HCC



2006

2007

2008

2009

2010

2011

2012

2013

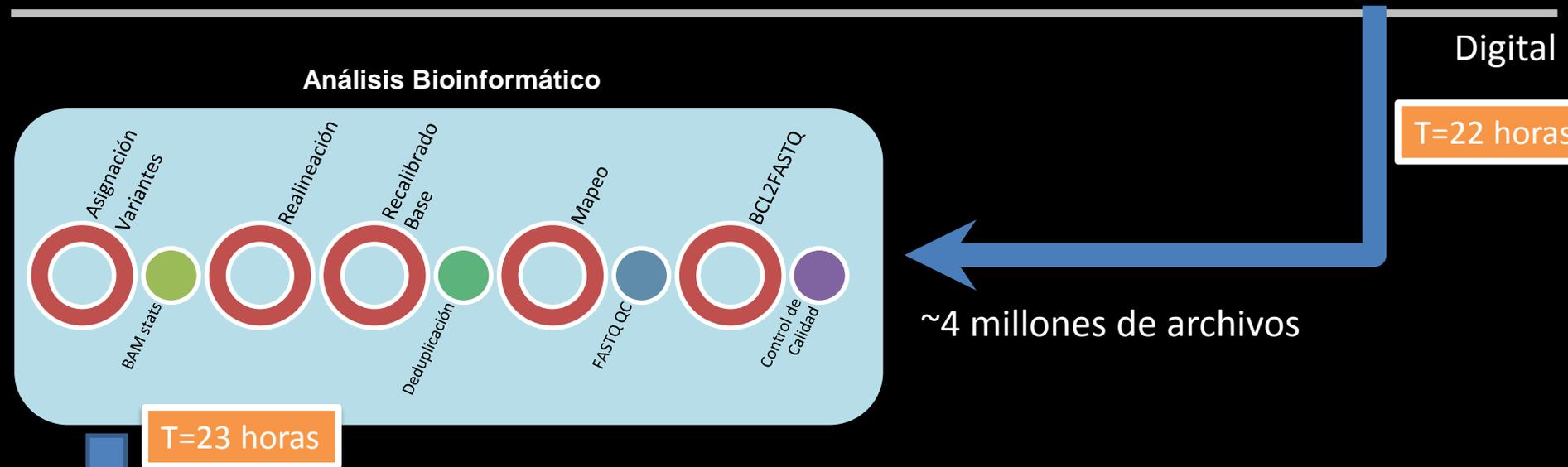
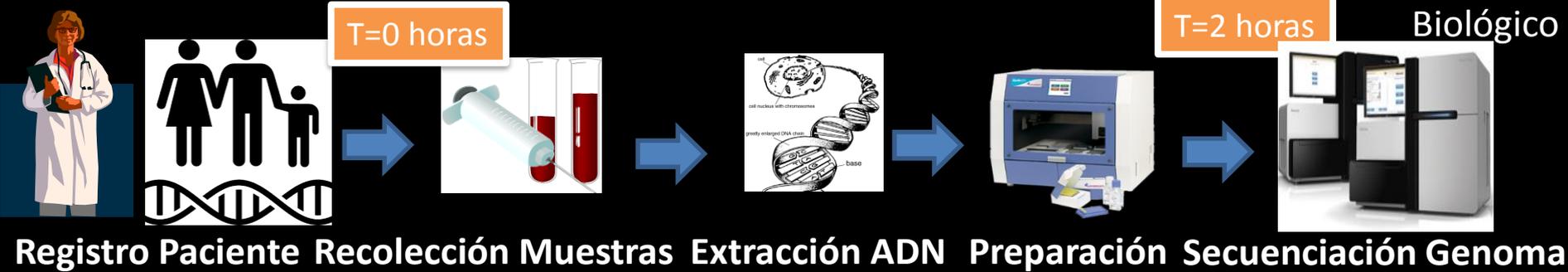
2014

2015

2016

2017





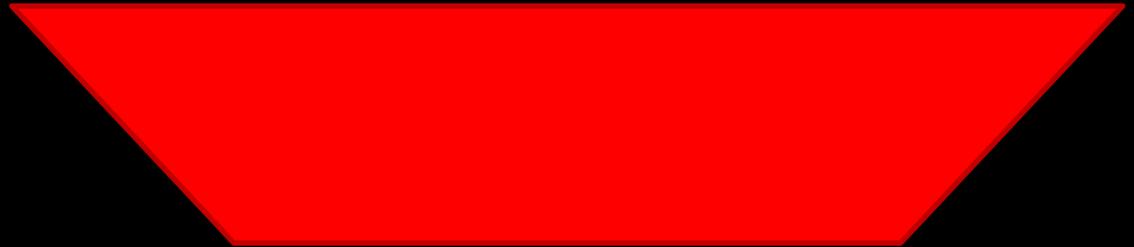
Flujo Genómico

Secuenciación completa del genoma (SCG)



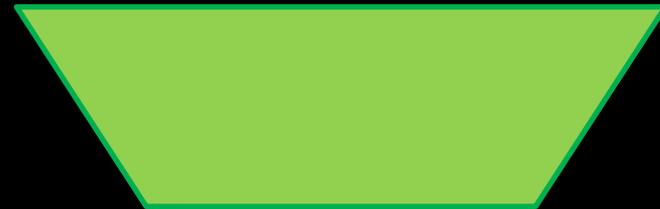
3.000.000.000

Identificación de las variantes del genoma de referencia



3.000.000

Exclusión de variantes no patológicas



3.000

Correspondencia con el fenotipo



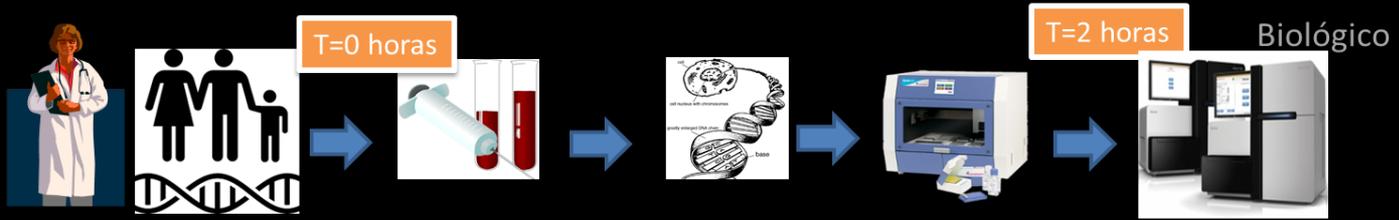
3

Diagnóstico



Fase 2

HCC



Datos fenotípicos profundos



Comparación del Coste Real Incurrido

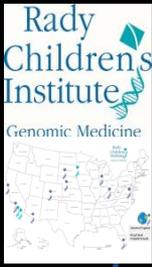
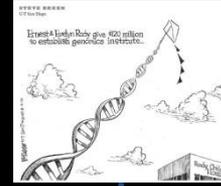


45%

diagnóstico

60%

cambio terapéutico



HCC

HCC

HCC

HCC



2006

2007

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017



Genome England
(Reino Unido)

King Faisal
(Arabia Saudí)

Negociaciones

Activo





Atención a Distancia



Agencia de Atención Domiciliaria



Centros de Atención Primaria:
CPCMG



Servicios de Mejora de Salud Comunitaria



Hospital Cuaternario



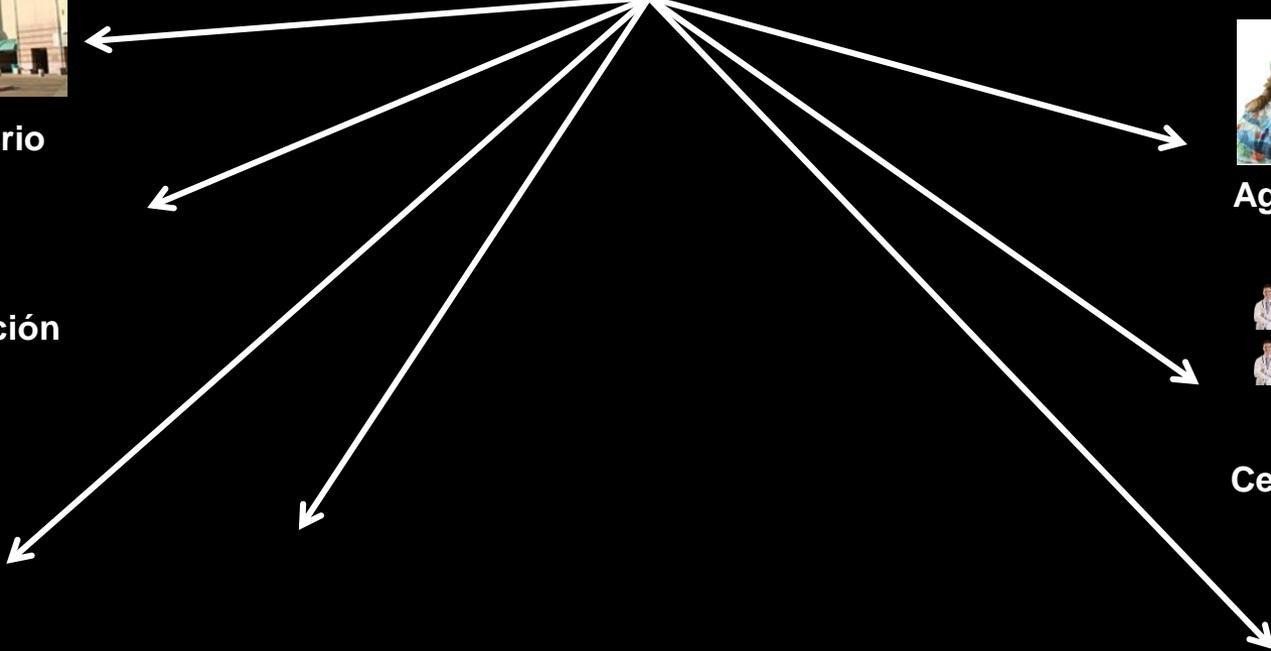
Centros de Atención Ambulatoria:
San Diego,



Centros de Urgencias:
Mid-City San Diego



UCINs Satélites:
La Jolla, Encinitas

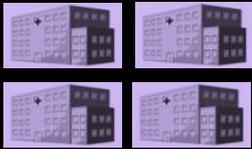




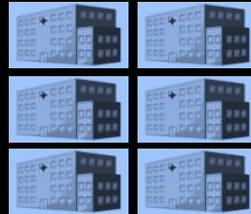
Hospital Cuaternario



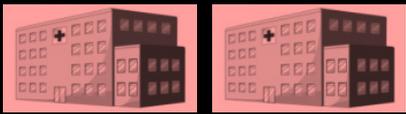
Centros de Atención Ambulatoria:
San Diego, Escondido, Oceanside



Centros de Urgencias:
Mid-City San Diego, Carlsbad, Escondido, La Mesa, San Diego



UCINs Satélites:
La Jolla, Encinitas, Mercy, Chula Vista, Palomar, Rancho Springs



Unidades Pediátricas Satélites:
Sharp Grossmont Hospital, Palomar Medical Center



Instituto de Medicina Genómica



Servicios de Mejora de Salud Comunitaria



Agencia de Atención Domiciliaria



Centros de Atención Primaria:
CPCMG,

Atención a Distancia

Sistema de Salud de Rady Children's

El Gobierno de las TICs



Consejo de Administración

Instituto Genómico

Comité de Instalaciones

Comité de TICs

Junta de Gobierno

Comité de Responsabilidad

Comité de Finanzas

Comité de Calidad

CPCMG

RCHSD

RCSSD

CPMG

Organización

Equipo Ejecutivo

Junta de Gobierno de la Red de Atención

SDHC

Estrategia / Plan ↓ ↑ Liderazgo Consejo

Proyectos

Comité Director

Consejo Asesor de TICs

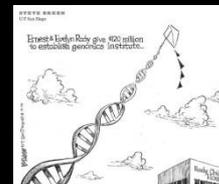
Consejo Asesor de Información Clínica

Consejo Asesor de Sistemas de Gestión

Dirección/Iniciativas ↓

↑ Información

Equipos de Proyecto (Ad Hoc)

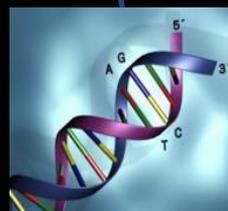


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HCC



Una cuestión
de Principios...

...Rectores

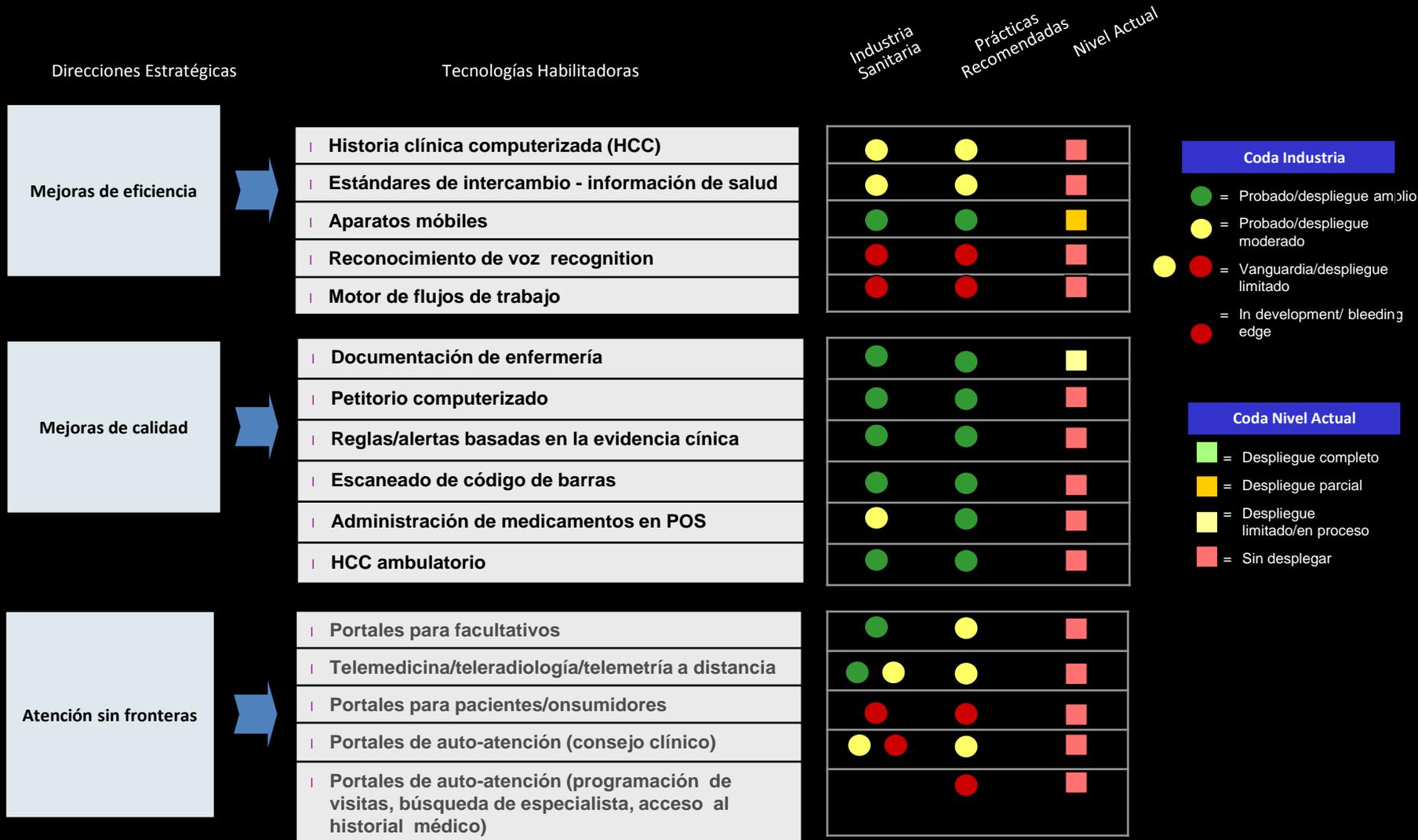
Principios Rectores

- Participación plena
- Atención completa
- Liderazgo y responsabilidad administrativa y clínica
- Comunicación persistente – Temprano y a menudo
- Capacitar a los responsables
- Excelencia, no perfección
- Aprovechar el éxito ajeno – No reinventar la rueda
- Estandarizar – Valorar y respetar las necesidades de los interesados
- A tiempo y dentro del presupuesto
- ¡Para los niños!

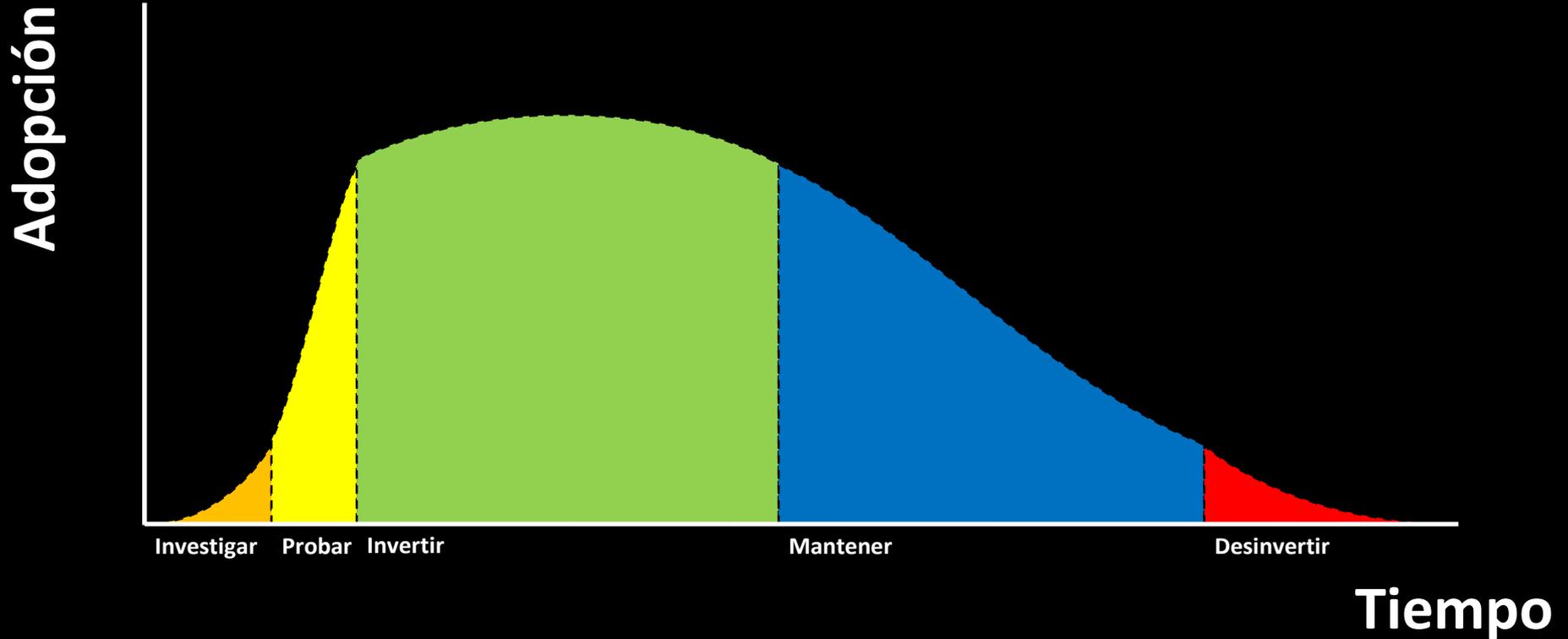




Mercado Externo y Situación (2006)

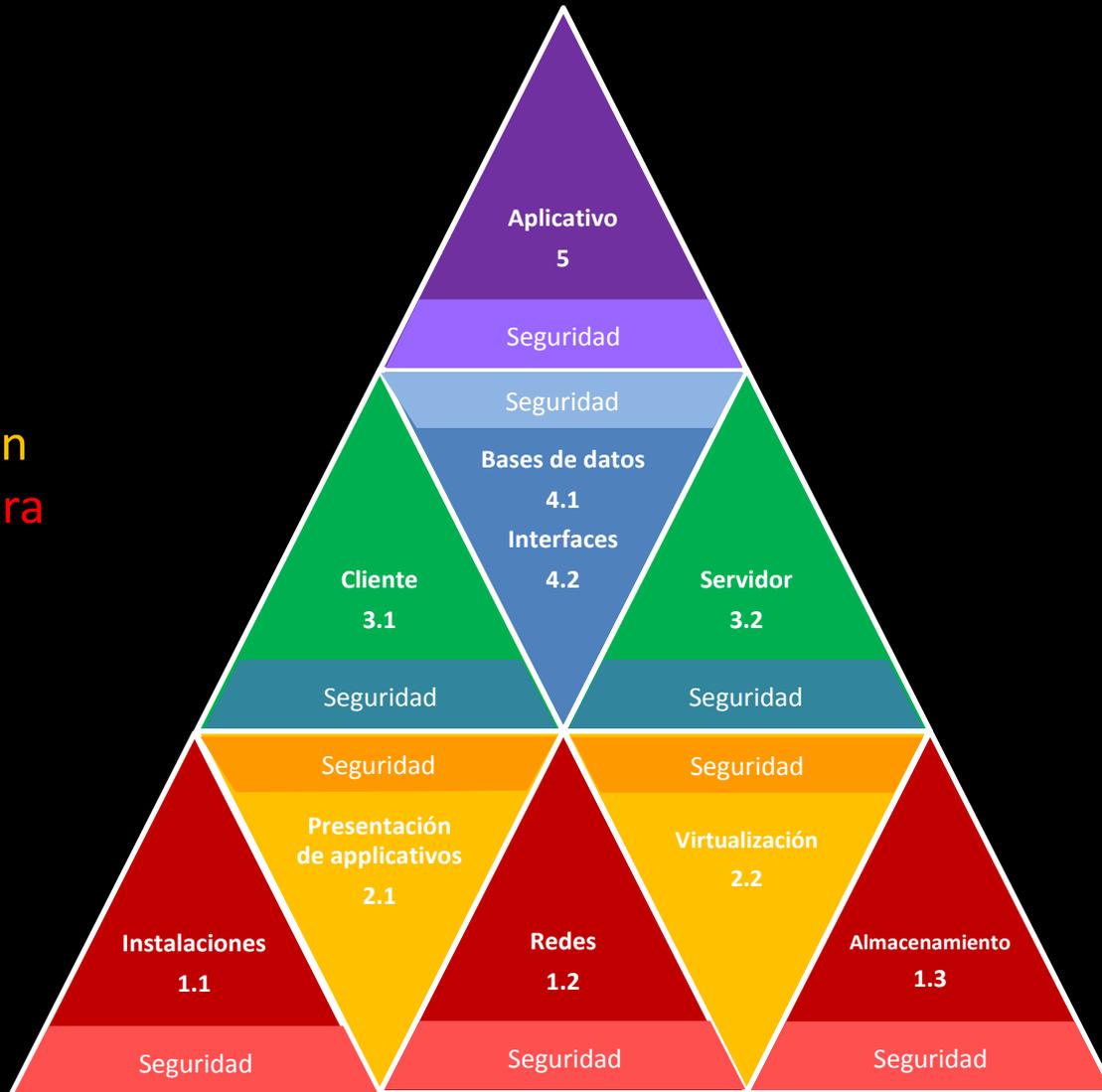


Ciclo de vida de las tecnologías de Rady Children's



Inversiones corrientes y de futuro

Aplicativos
Datos
Plataformas
Presentación
Infraestructura



Marco de Inversión en TICs

Sostenibilidad e Innovación

Excelencia Consistente

Misión:

Restablecer, mantener y mejorar la salud y el potencial de desarrollo de menores mediante la excelencia en la atención, educación, investigación y apoyo de nuestros pacientes.

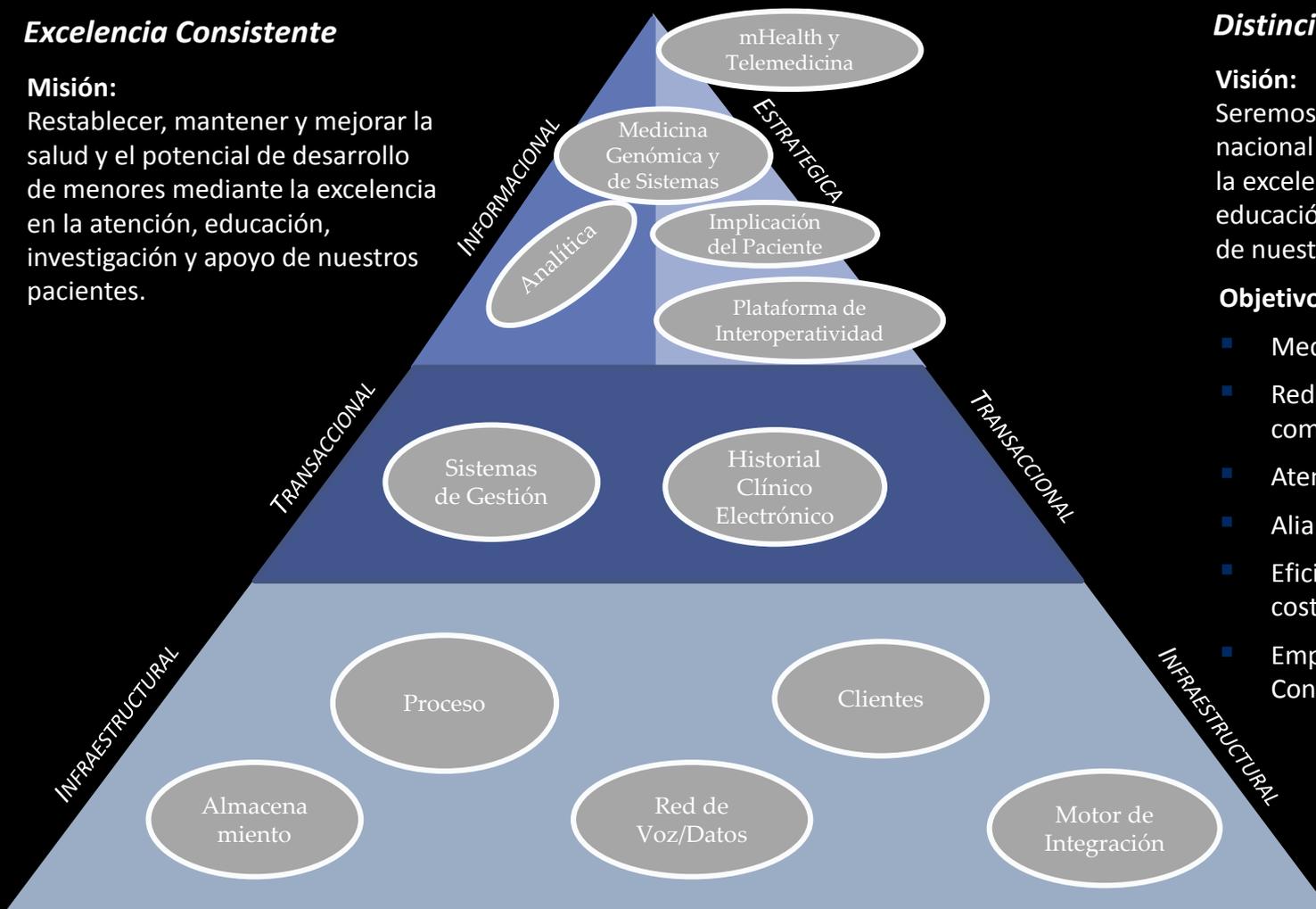
Distinción Selectiva

Visión:

Seremos líderes reconocidos nacional e internacionalmente por la excelencia en la atención, educación, investigación y apoyo de nuestros pacientes.

Objetivos:

- Medicina de precisión
- Rediseño de la atención / Salud comunitaria
- Atención de alta calidad
- Alianzas y crecimiento
- Eficiencia/ Contención de costes
- Empresa preferida / Contratación y retención



EMR: Core, Ancillary, and Specialty Applications – Current

Specialty Systems

ICU Clinical Patient Record	Oncology Computerized Patient Record
Ambulatory Computerized Patient Record	Neonatal Point of Care
Surgical Apps - departmental	Neonatal Computerized Patient Record
Surgical Apps - clinical	ED Computerized Patient Record
Medication Management	Online Patient Education & Entertainment
Clinical Trials Administration	Home Health Services

Core Clinical Information System

Nursing Clinical Documentation	Physician Documentation	Computerized Physician Order Entry
RT / PT & Speech Therapy Ordering and Documentation	Clinical Data Repository	Order Communication and Order Management
Advanced Care Planning Clinical Protocols and Pathways	Integrated Inpatient & Outpatient	Discharge Planning / Summary
Medication Administration Record	Intelligent Results Reporting	Data Warehouse
Point of Care MAR with Bar Coding	Results Review	Advanced Query and Research Tools
Registration (ADT)	Document Imaging	Surveillance Reporting
Hospital Billing	Knowledge Engine and links to Knowledge Bases	Physician Portal
	Scheduling	EMPI
	Professional Billing	HIM – Abstracting, Release of Information

Ancillary Systems

Laboratory	Pathology
Blood Bank	Dietary and Nutrition
Neurology / EEG / EMG	Cardiology / Pulmonary
Radiology	Outpatient Pharmacy – E-prescribing
Inpatient Pharmacy	Outpatient Pharmacy - Billing
PACS	

Key: Core System Module Interfaced App. Standalone App. No Application

EMR: Core, Ancillary, and Specialty Applications – Phase 1

Specialty Systems

ICU Clinical Patient Record	Oncology Computerized Patient Record
Ambulatory Computerized Patient Record	Neonatal Point of Care
Surgical Apps - departmental	Neonatal Computerized Patient Record
Surgical Apps - clinical	ED Computerized Patient Record
Medication Management	Online Patient Education & Entertainment
Clinical Trials Administration	Home Health Services

Core Clinical Information System

Nursing Clinical Documentation	Physician Documentation	Computerized Physician Order Entry
RT / PT & Speech Therapy Ordering and Documentation	Clinical Data Repository	Order Communication and Order Management
Advanced Care Planning Clinical Protocols and Pathways	Integrated Inpatient & Outpatient	Discharge Planning / Summary
Medication Administration Record	Intelligent Results Reporting	Data Warehouse
Point of Care MAR with Bar Coding	Results Review	Advanced Query and Research Tools
	Document Imaging	Surveillance Reporting
	Knowledge Engine and links to Knowledge Bases	Physician Portal
Registration (ADT)	Scheduling	EMPI
Hospital Billing	Professional Billing	HIM – Abstracting, Release of Information

Ancillary Systems

Laboratory	Pathology
Blood Bank	Dietary and Nutrition
Neurology / EEG / EMG	Cardiology / Pulmonary
Radiology	Outpatient Pharmacy – E-prescribing
Inpatient Pharmacy	Outpatient Pharmacy - Billing
PACS	

Key: Core System Module Interfaced App. Standalone App. No Application

EMR: Core, Ancillary, and Specialty Applications – Phase 2

Specialty Systems

ICU Clinical Patient Record	Oncology Computerized Patient Record
Ambulatory Computerized Patient Record	Neonatal Point of Care
Surgical Apps - departmental	Neonatal Computerized Patient Record
Surgical Apps - clinical	ED Computerized Patient Record
Medication Management	Online Patient Education & Entertainment
Clinical Trials Administration	Home Health Services

Core Clinical Information System

Nursing Clinical Documentation	Physician Documentation	Computerized Physician Order Entry
RT / PT & Speech Therapy Ordering and Documentation	Clinical Data Repository	Order Communication and Order Management
Advanced Care Planning Clinical Protocols and Pathways	Integrated Inpatient & Outpatient	Discharge Planning / Summary
Medication Administration Record	Intelligent Results Reporting	Data Warehouse
Point of Care MAR with Bar Coding	Results Review	Advanced Query and Research Tools
Registration (ADT)	Document Imaging	Surveillance Reporting
Hospital Billing	Knowledge Engine and links to Knowledge Bases	Physician Portal
	Scheduling	EMPI
	Professional Billing	HIM – Abstracting, Release of Information

Ancillary Systems

Laboratory	Pathology
Blood Bank	Dietary and Nutrition
Neurology / EEG / EMG	Cardiology / Pulmonary
Radiology	Outpatient Pharmacy – E-prescribing
Inpatient Pharmacy	Outpatient Pharmacy - Billing
PACS	

Key: Core System Module Interfaced App. Standalone App. No Application

EMR: Core, Ancillary, and Specialty Applications – Phase 3

Specialty Systems

ICU Clinical Patient Record	Oncology Computerized Patient Record
Ambulatory Computerized Patient Record	Neonatal Point of Care
Surgical Apps - departmental	Neonatal Computerized Patient Record
Surgical Apps - clinical	ED Computerized Patient Record
Medication Management	Online Patient Education & Entertainment
Clinical Trials Administration	Home Health Services

Core Clinical Information System

Nursing Clinical Documentation	Physician Documentation	Computerized Physician Order Entry
RT / PT & Speech Therapy Ordering and Documentation	Clinical Data Repository	Order Communication and Order Management
Advanced Care Planning Clinical Protocols and Pathways	Integrated Inpatient & Outpatient	Discharge Planning / Summary
Medication Administration Record	Intelligent Results Reporting	Data Warehouse
Point of Care MAR with Bar Coding	Results Review	Advanced Query and Research Tools
Registration (ADT)	Document Imaging	Surveillance Reporting
Hospital Billing	Knowledge Engine and links to Knowledge Bases	Physician Portal
	Scheduling	EMPI
	Professional Billing	HIM – Abstracting, Release of Information

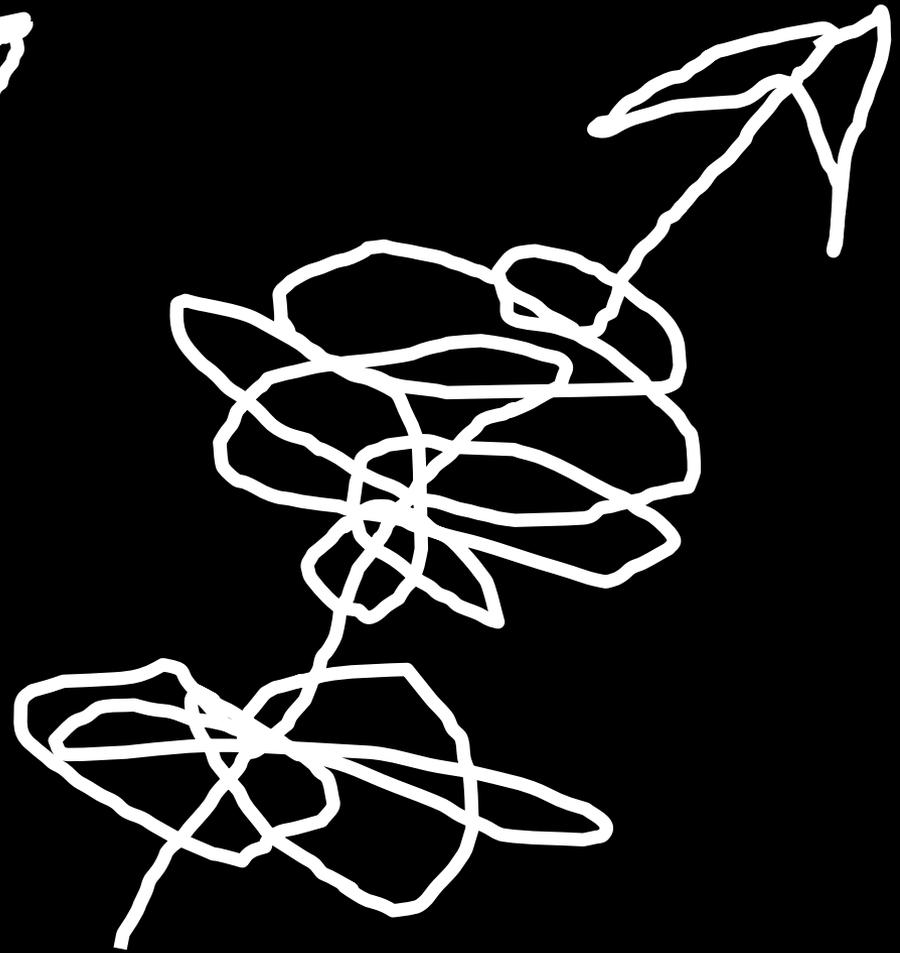
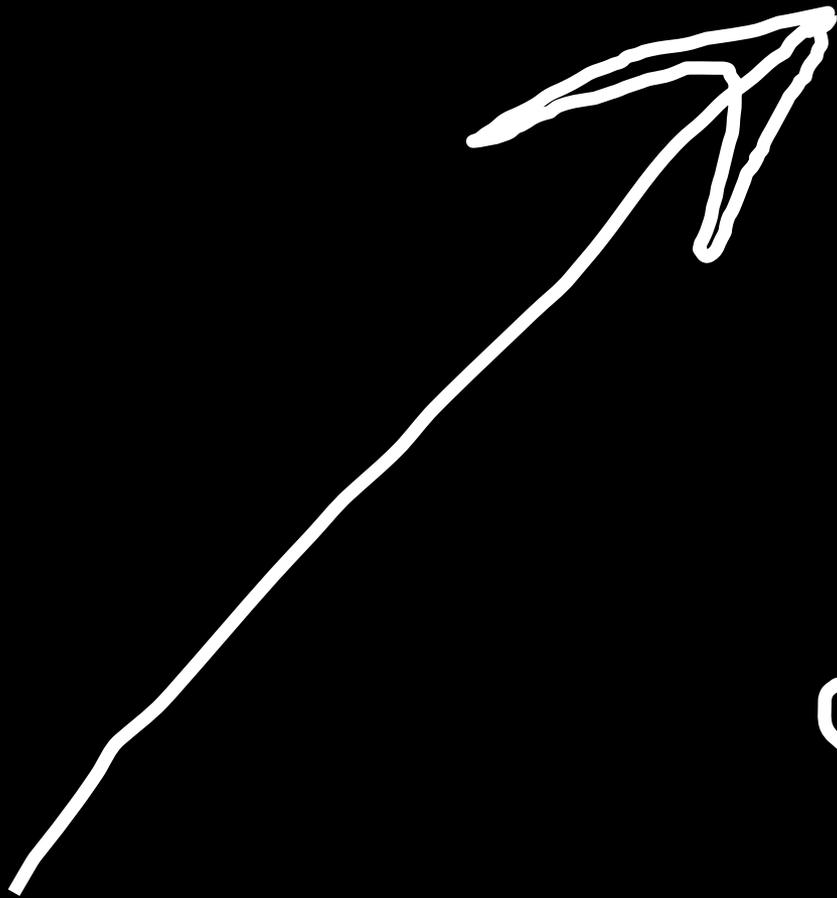
Ancillary Systems

Laboratory	Pathology
Blood Bank	Dietary and Nutrition
Neurology / EEG / EMG	Cardiology / Pulmonary
Radiology	Outpatient Pharmacy – E-prescribing
Inpatient Pharmacy	Outpatient Pharmacy - Billing
PACS	

Key: Core System Module Interfaced App. Standalone App. No Application

Expectativas

Realidad





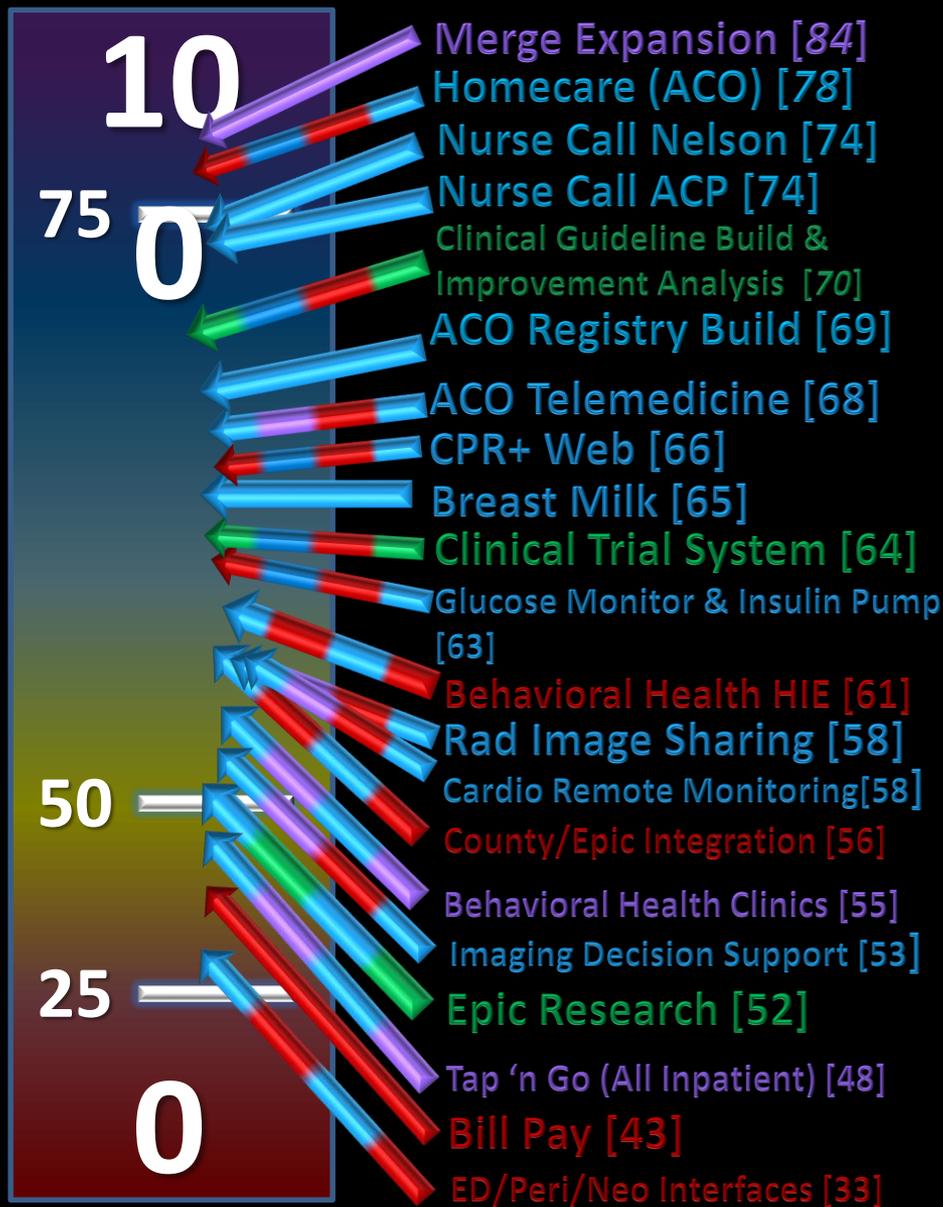
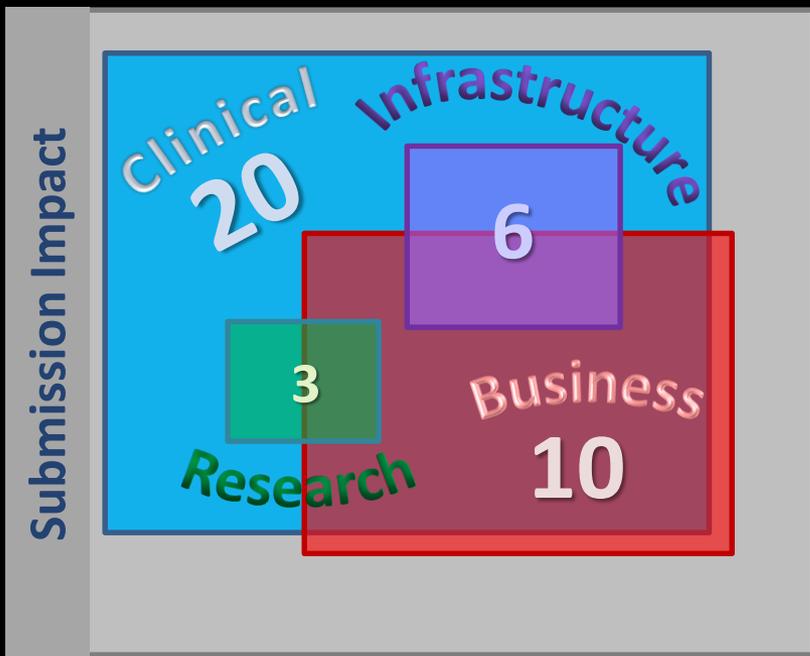
PUEDES HACER

CUALQUIER COSA,

-PERO NO PUEDES HACER TODAS LAS COSAS.



21 Submissions

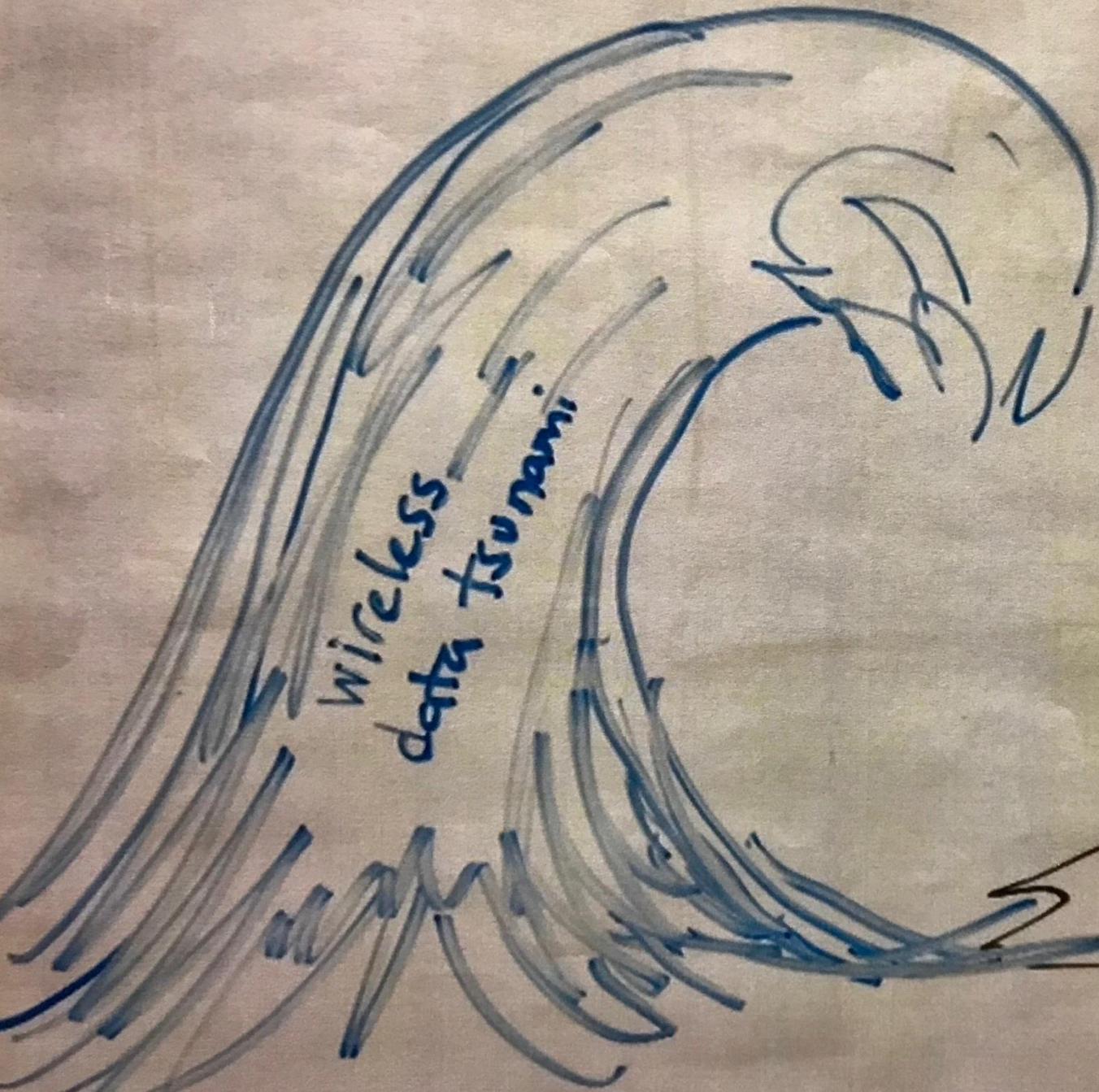






BIENVENIDO AL FUTURO

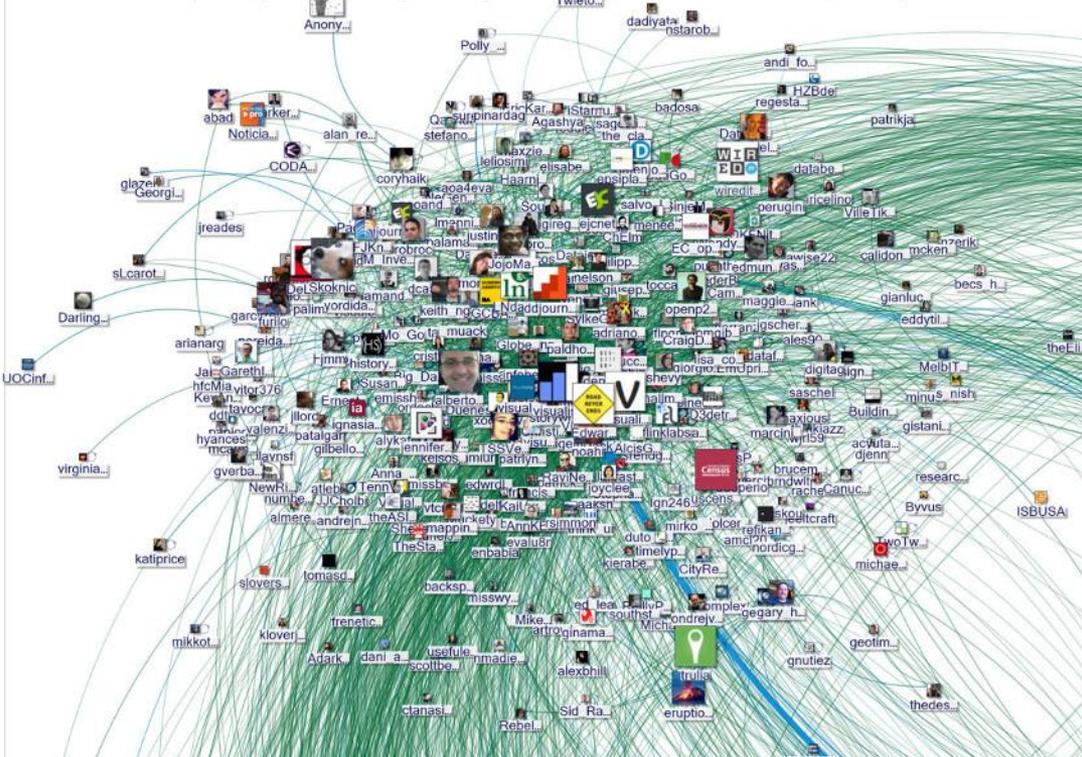
¿Y ahora qué?



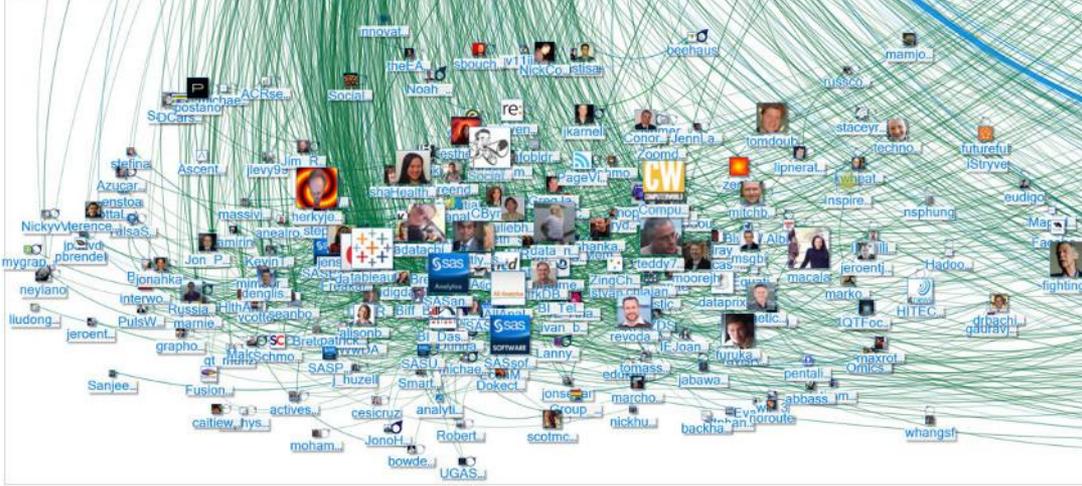
Wireless
data tsunami



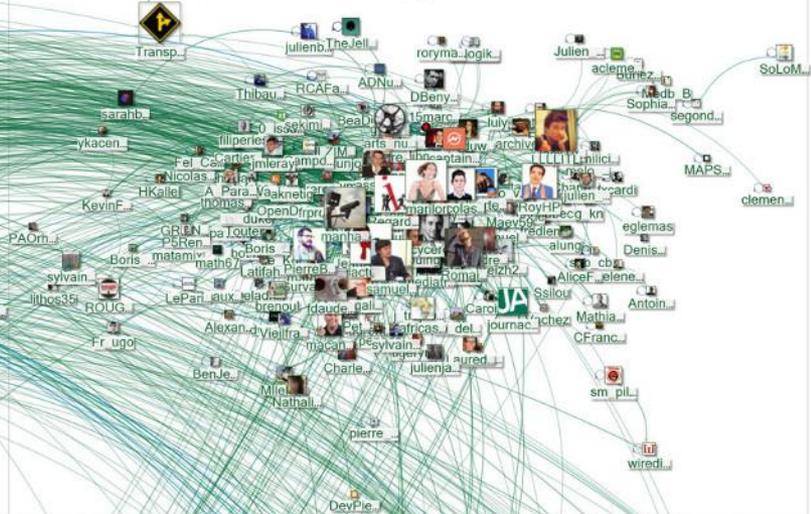
G1: dataviz ddj infographics bigdata govhack opendata data maps d3js visualization



G2: dataviz bigdata sas visualization analytics data infographic rstats facebook datascience



G3: dataviz ddj socialmedia bigdata opendata football gameofthrones outils tools design



G4: dataviz infographic willsmith anthropocene opendata wd2013 ghmmatters ddj ict4d opengov

G5: dataviz graphicdesign infographic bigdata opendata tngov tunisie dne joydivision petersaville

G6: dataviz mrx wtmonitor localgov casro bikesharing nptech boston data opendata

G7: dataviz visualization bangalore d3js r art infographics rhok ddj ux

G8: dataviz auxc13 infographic ux pastina napoleone...

G9: dataviz bigdata socialmedia hackforchange data stats...

G10: dataviz hackforchange twitter maps detroit taxes...

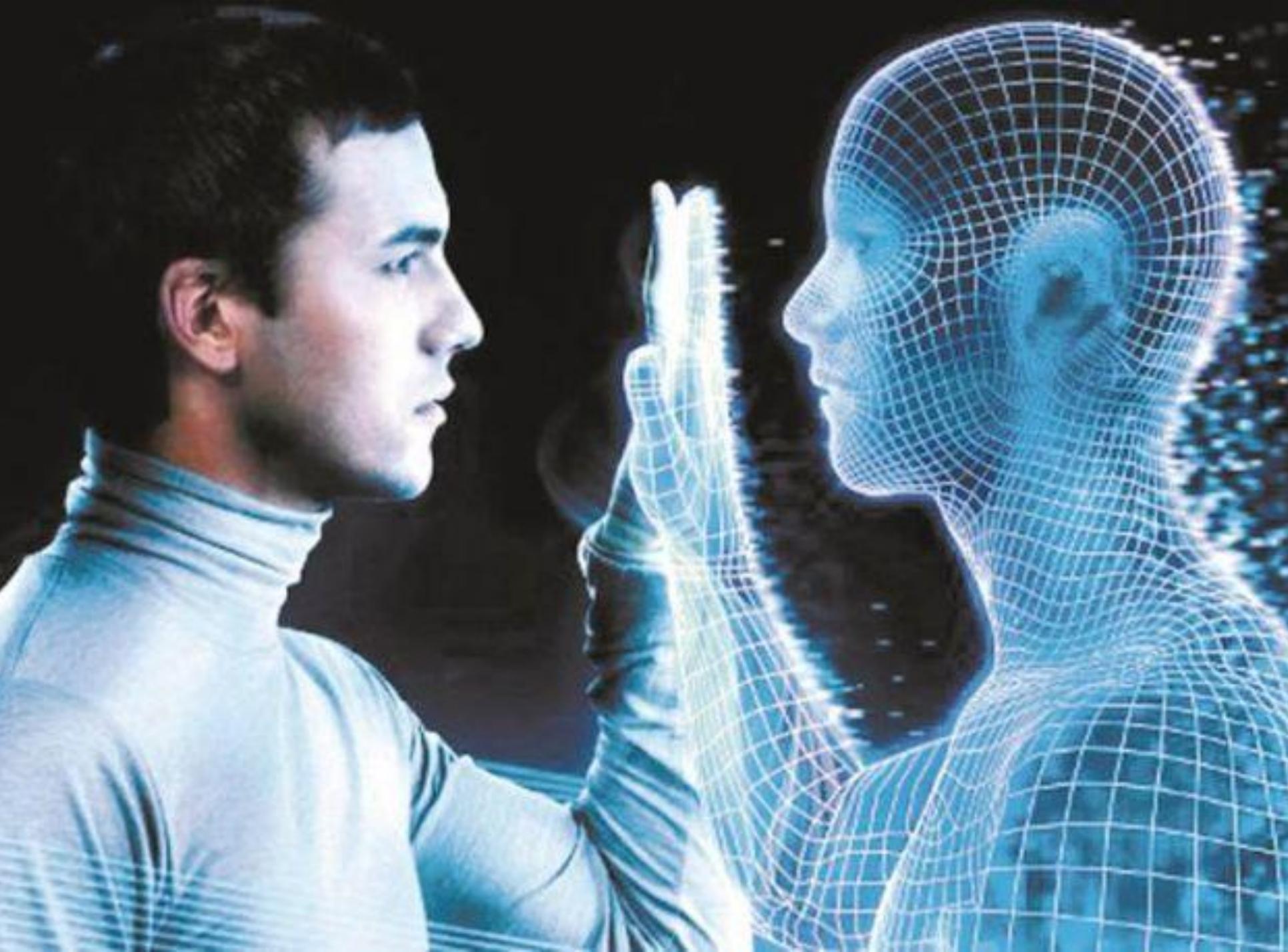
G11: dataviz govhack... lions...

G12: dataviz dataviz lions...

G13: dataviz govhack... lions...

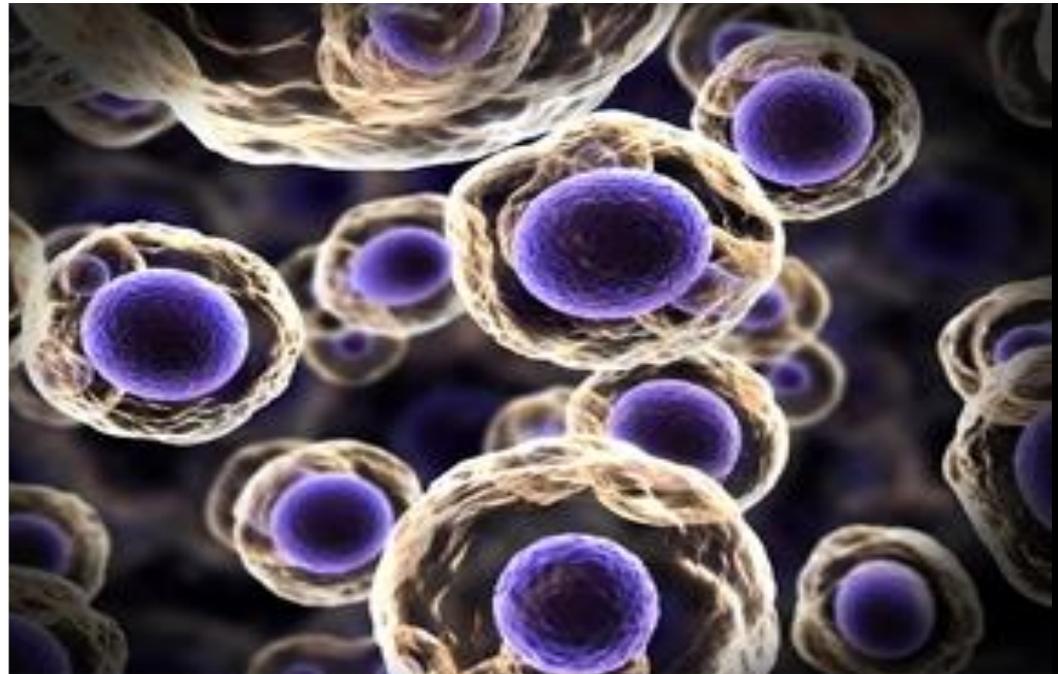
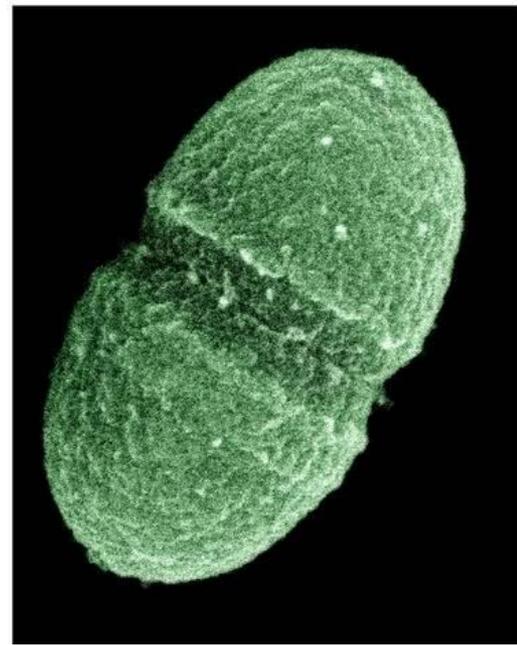
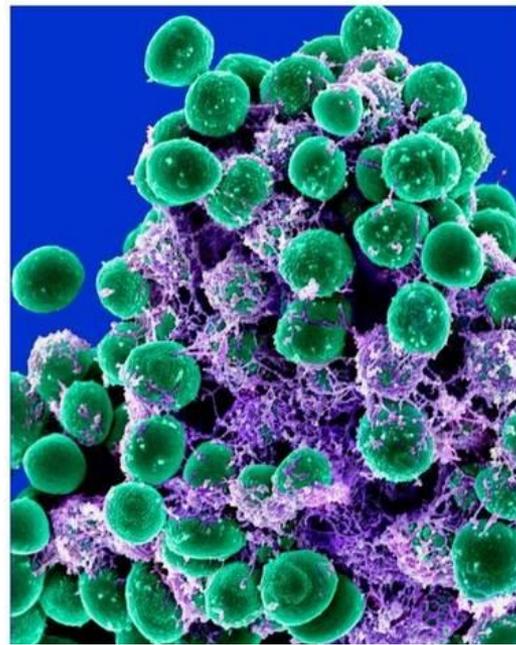
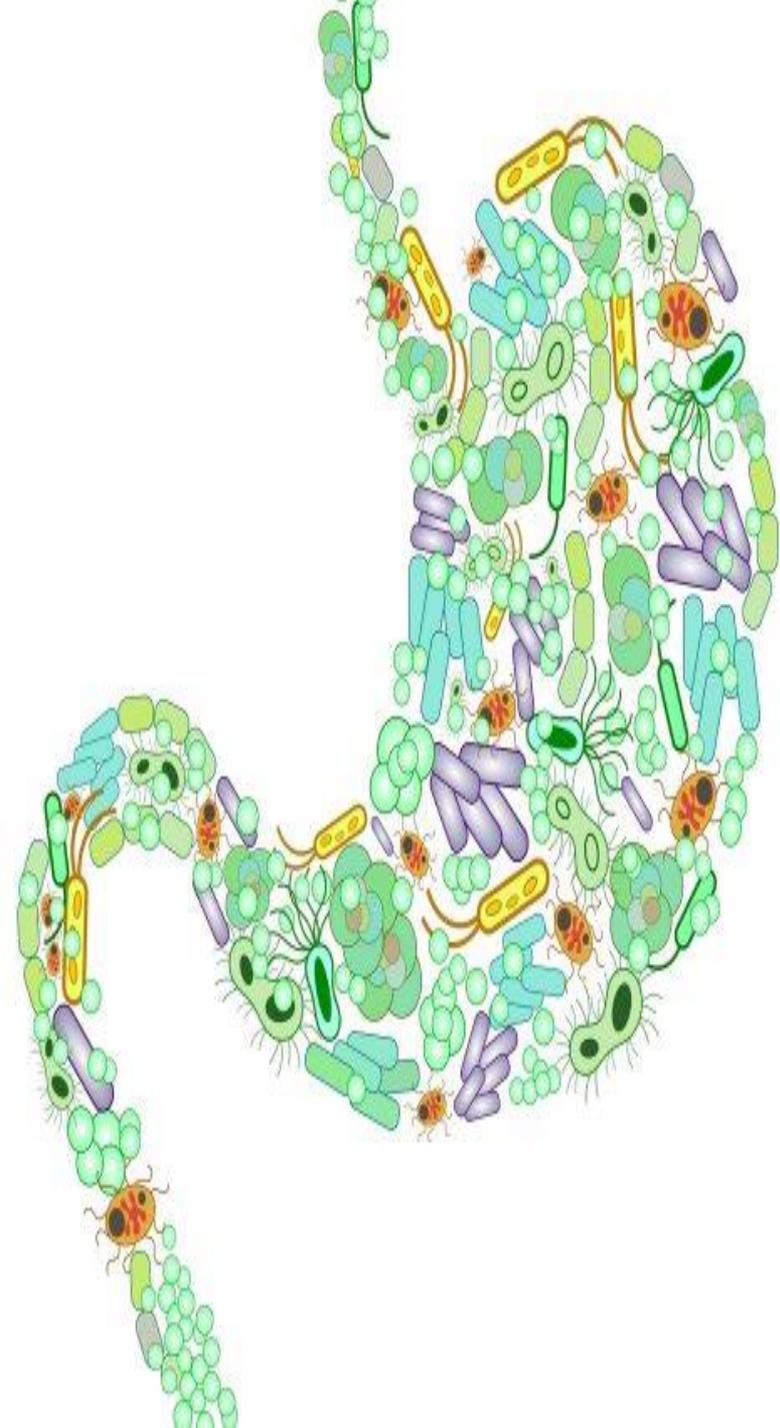
G14: dataviz govhack... lions...

G15: G13: G19: data... dataviz dat...



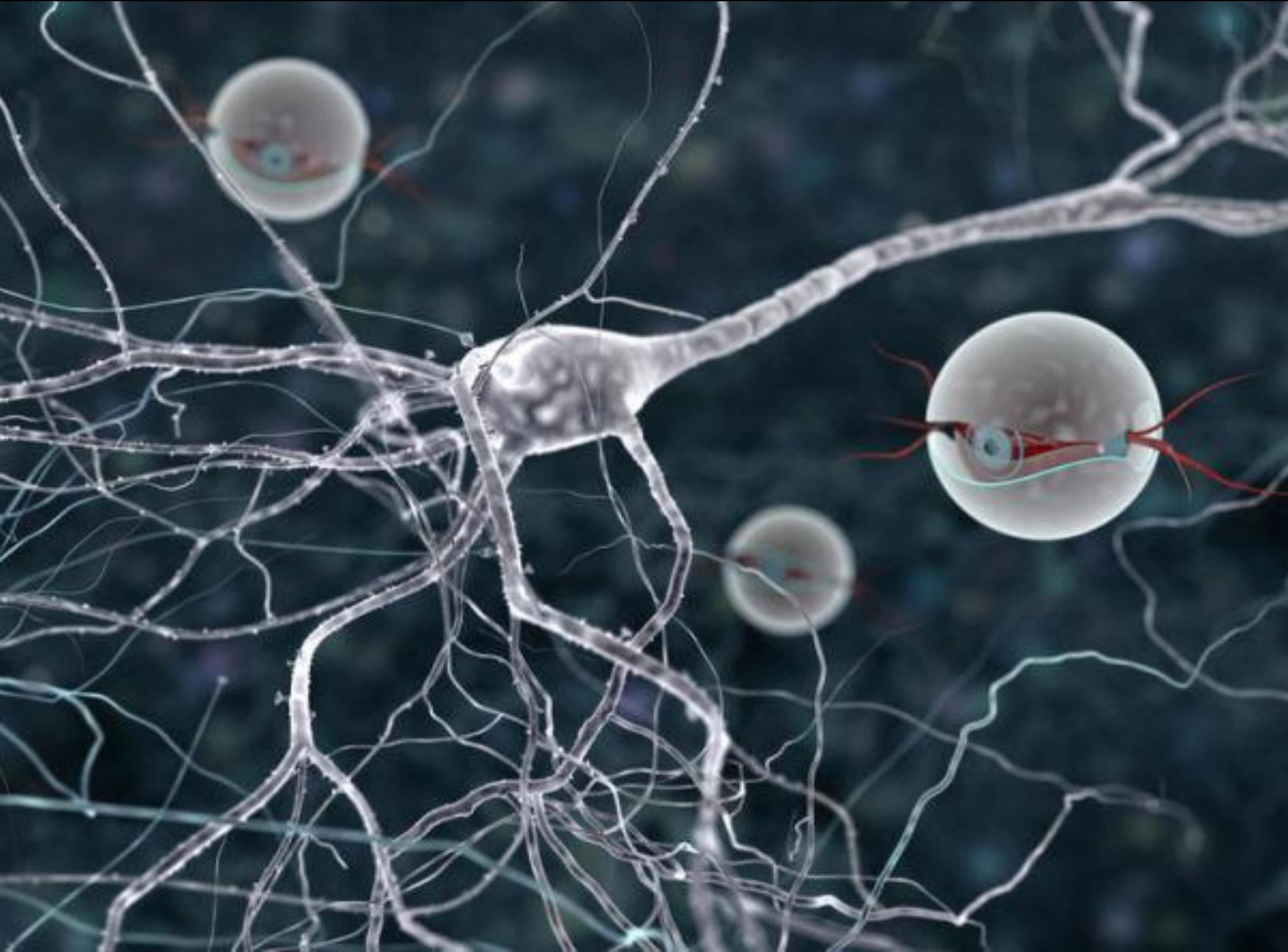


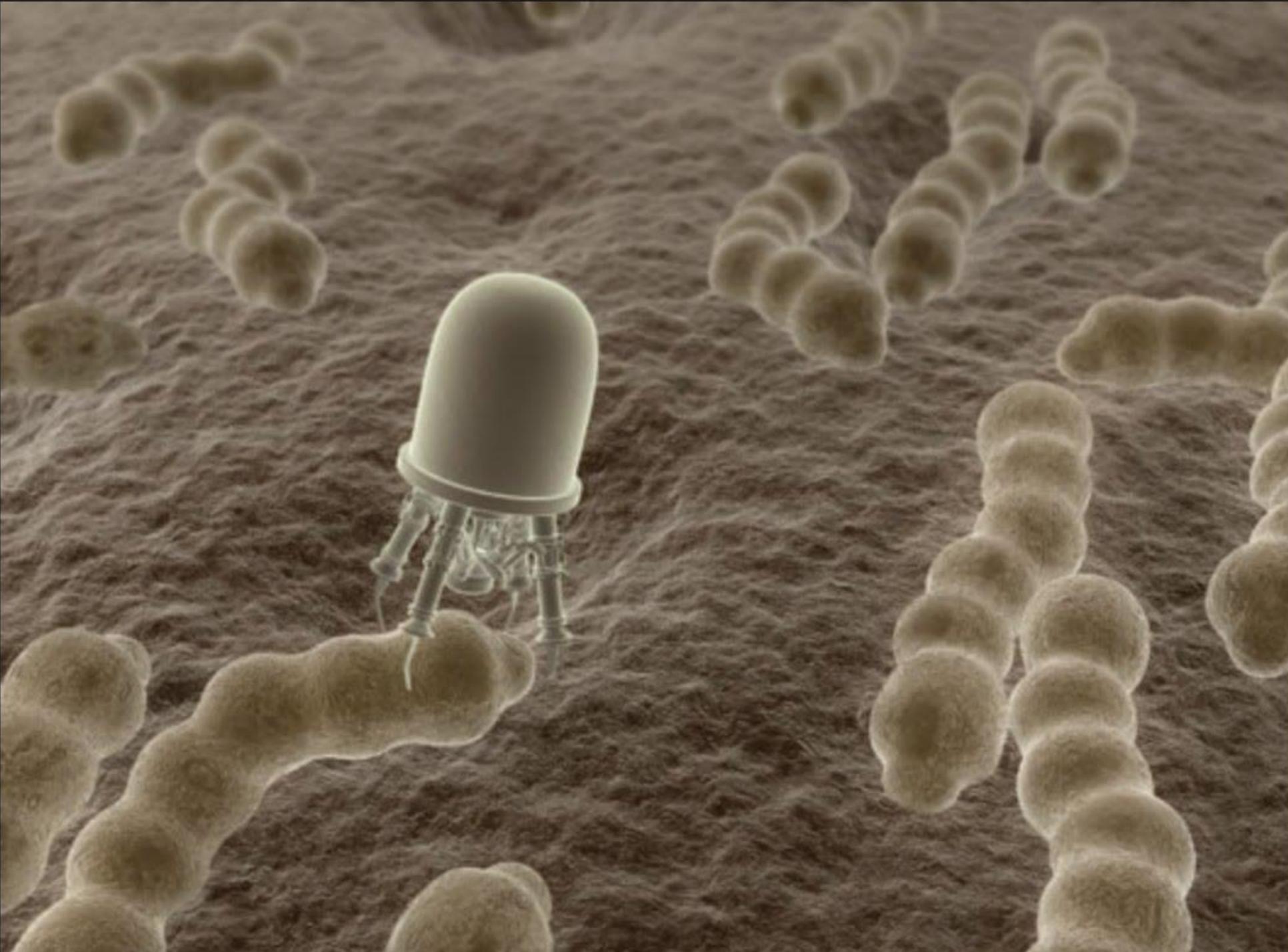


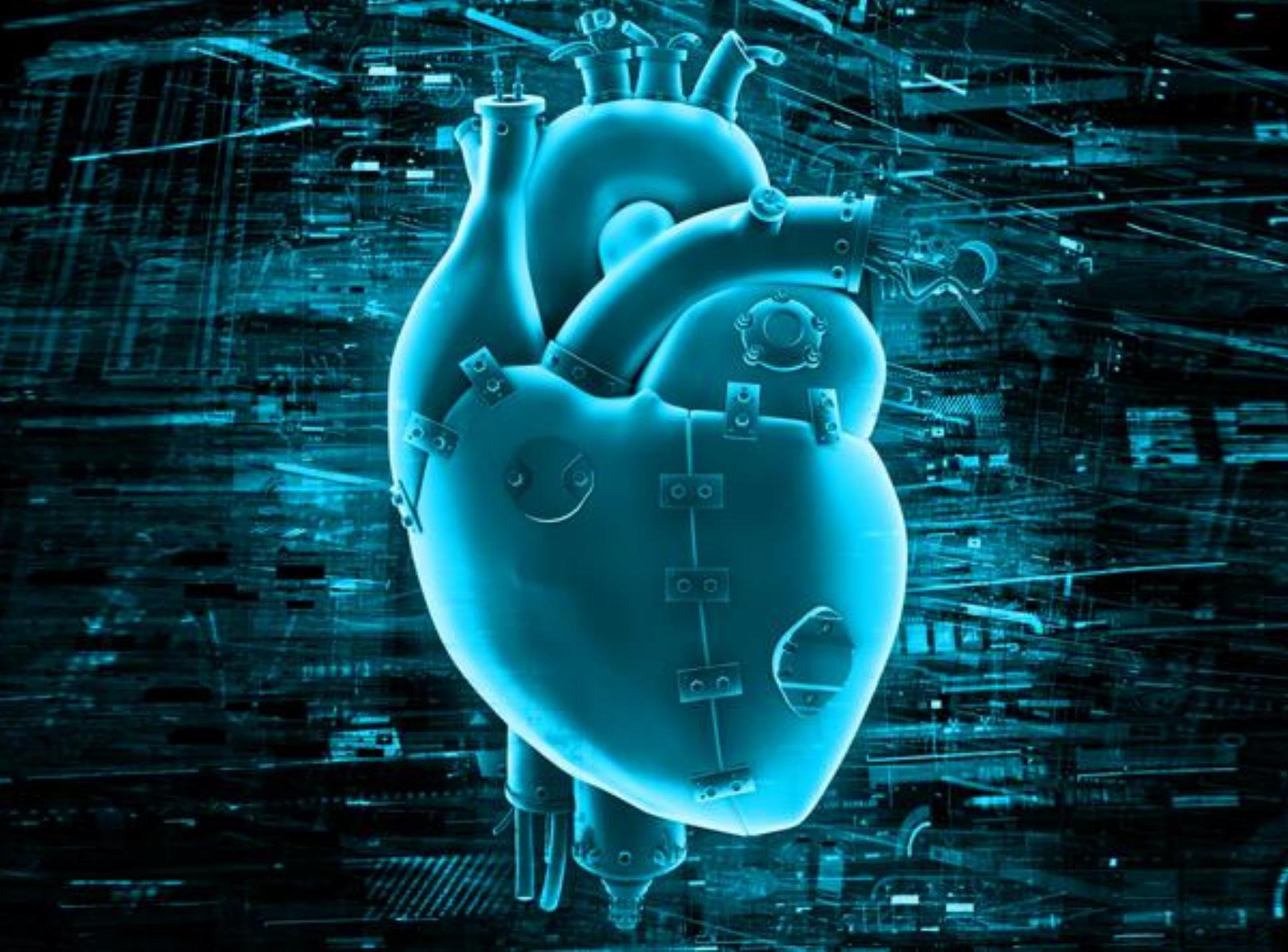


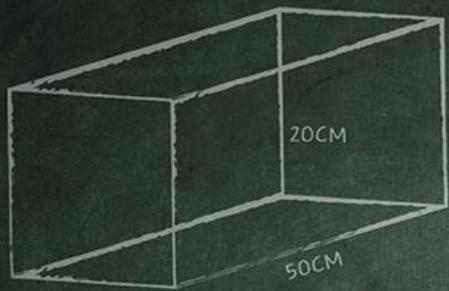






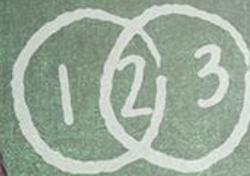






Littl

1,3,5,7,9,11,13,15,17



STAY SCHOOL

Aa Bb Cc Dd
Ff Gg Hh Ii
Ll Mm Nn Oo
Qq Rr Ss Tt
Vv Ww Xx

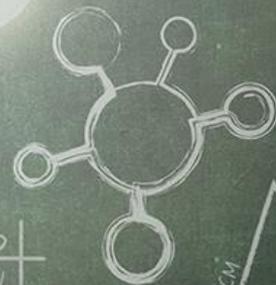


$$a^2 + b^2 = c^2$$



$$7 \times 2 = 14$$
$$5 \times 3 = 15$$
$$8 \times 4 = 32$$

A	v	B
v	o	v
o	o	v
o	o	o



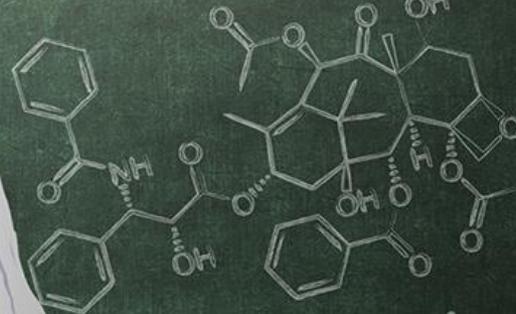
TE

$$E = MC^2$$



12 cm

12 cm



Hom



$$6 + 0 = 6$$
$$5 + 2 = 7$$
$$5 + 3 = 8$$



¡Muchas Gracias!

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Apéndice: En una página

Las claves del éxito:

1. Gobernar
2. Establecer principios
3. Mirarse al espejo
4. Planificar
5. Invertir
6. Sentar expectativas
7. Generar confianza
8. Definir prioridades
9. Construir un equipo
10. Definir una visión

¿Y ahora qué?

1. Tsunami de sensores (IoT)
2. Redes Sociales (Social Media)
3. Inteligencia artificial
4. Seguridad digital
5. Blockchain
6. Microbioma
7. Edición de genes
8. Terapia genética
9. Nanotecnología
10. Robotización