21st Century Cures Act

Modernizing Clinical Trials

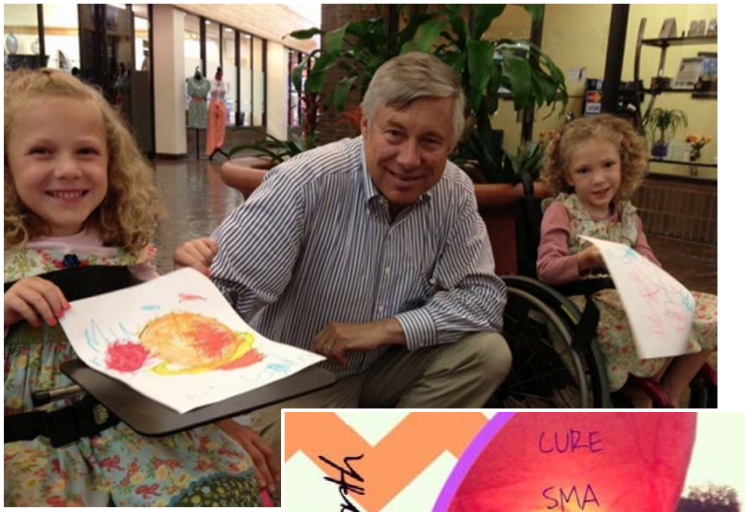
Introducing Digital Therapeutics

Giuseppe Recchia

Consigliere e Vice Presidente

Fondazione Smith Kline, Verona

2014 – Brooke and Brillie



#CuresNow

2015 – FasterCures

FasterCures is an action tank that works to speed and improve the medical research system.

10,000 diseases. 500 treatments. We have work to do.

10.000 diseases

- 7.000 rare
- 500 treatments
- 9.500 waiting for…

Patients Can't Wait

2015 – FasterCures

Sanità24

15 Lug 2015

Stampa Chiudi

Dagli Stati Uniti nuove speranze per i pazienti in attesa di terapie

di Giuseppe Recchia (direttore medico scientifico, GlaxoSmithKline), Armando Genazzani (Università del Piemonte Orientale), Francesca Pasinelli (Dg Fondazione Telethon)

Il progresso scientifico degli ultimi vent'a
genoma umano, ha fornito una quantità d
delle malattie ed ha permesso di ident
impensabile fino a pochi anni fa.
Tradurre queste scoperte in nuove terapie
del previsto. Le malattie oggi conosciute s
cioè colpiscono meno di 500 persone ogni
vi sono trattamenti o terapie adeguati.

2016 – Austin at the FDA Hearing

Drugs research + Follow

US healthcare: Power to the patients?

Families of boys suffering from Duchenne muscular dystrophy push for approval of a new medicine

Stacie al-Chokhachi and her son, Dalton listen to testimony on the use of Eteplirsen at an FDA meeting in April

7 Save

MAY 22, 2016 by: David Crow

Austin Leclaire steered his electric wheelchair into the hotel ballroom and prepared for what he would later describe as the proudest moment of his life. Upon taking the microphone, the 17-year-old pleaded with US regulators to approve an experimental drug for the deadly wasting disease he suffers from. "It lets me feed myself, it gives us a chance," he told the assembled scientists and doctors. "It's time to listen to the real experts."

Austin has Duchenne muscular dystrophy, a rare genetic disorder that sends its victims — almost all of them boys — to an early grave, usually before they are 25. He was one of more than 150 sick children to attend a meeting organised by the US Food and Drug Administration last month, where it discussed whether to give the green light to Eteplirsen, the first medicine for the disease.

The FDA is due to announce on Thursday if it has approved Eteplirsen, a ruling that is

Families of boys suffering from Duchenne muscular dystrophy are pushing for approval of a new medicine despite scientists' scepticism. The case highlights the difficulty of developing treatments for rare illnesses.

By David Crow

Power to the patients?

2016 – 21st Century Cures Act...

NOVEMBER 25, 2016

RULES COMMITTEE PRINT 114-67

TEXT OF HOUSE AMENDMENT TO THE SENATE AMENDMENT TO H.R. 34, TSUNAMI WARNING, EDUCATION, AND RESEARCH ACT OF 2015

[Showing the text of the 21st Century Cures Act.]

In lieu of the matter proposed to be added after the enacting clause, insert the following:

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

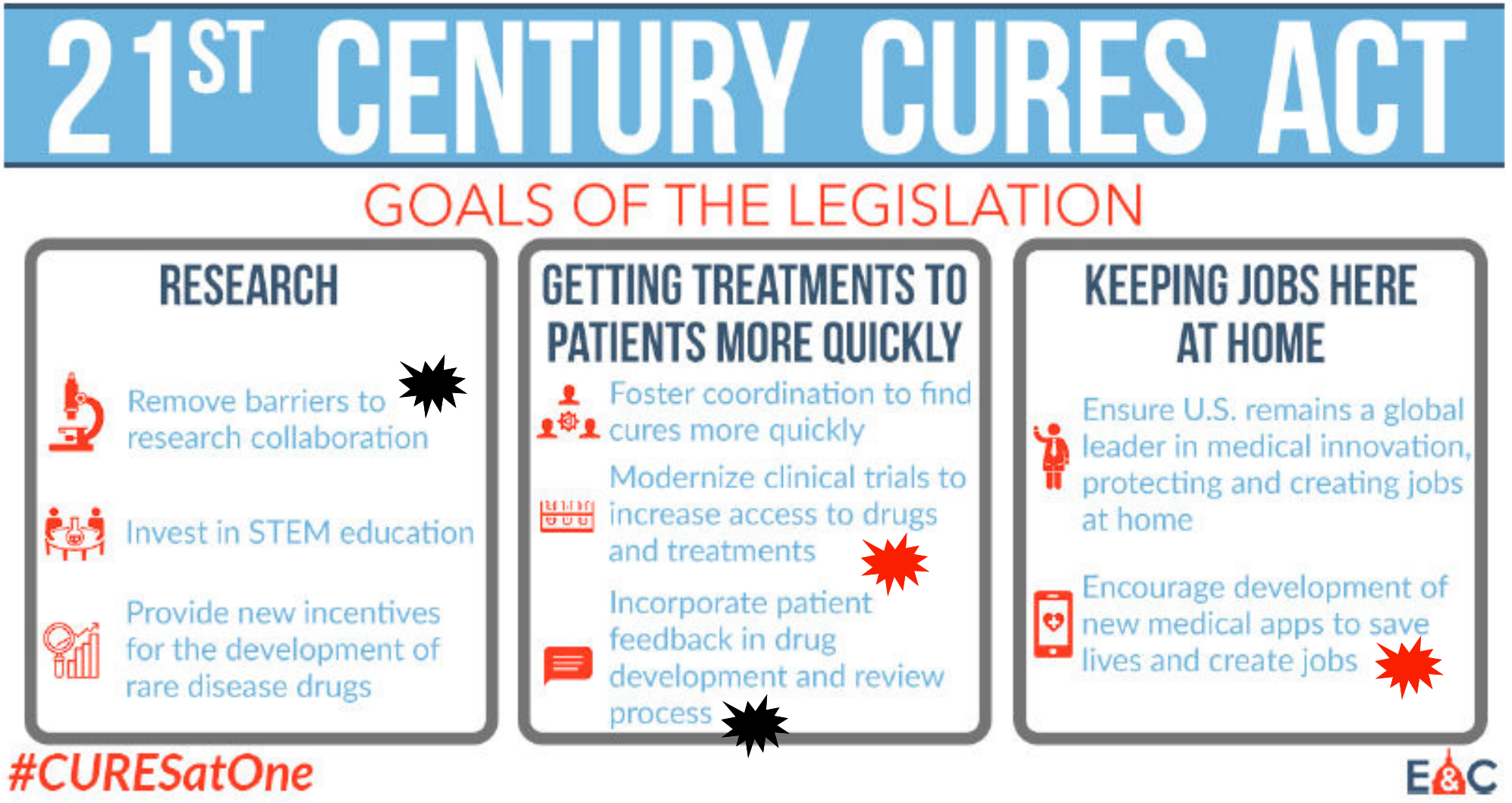
(a) SHORT TITLE.—This Act may be cited as the "21st Century Cures Act".

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

Obama signs 21st Century Cures Act

On December 7, the US Senate approved the 21st Century Cures Act—the final step before President Barack Obama, who had long championed the bill, signed it into law six days later. Senate passage, by a vote of 94–5, came a week after the House of Representatives reiterated its overwhelming support for the measure, which it first passed in July 2015 (*Nat. Biotechnol.* **33**, 891, 2015). The Act calls for increasing support for government-led programs including $1.8 billion for Cancer Moonshot 2020, nearly $3 billion for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) and Precision Medicine Initiatives, and steps to improve mental health. It also includes incentives aimed at making processes for drug development and approval more industry-friendly, and encourages a more patient-centric approach to drug review. The legislation

2016 – 21st Century Cures Act... #CuresNow



Perchè Modernizzare i Trials Clinici?

FDA

FDA's Janet Woodcock: the clinical trials system is 'broken'

by ZACHARY BRENNAN - RAPS — on September 20, 2017 02:20 PM EDT

The nation's clinical trial system is "broken" and needs to be changed to generate better evidence that leads to better patient outcomes, the head of the FDA's drug center said.

Perchè Modernizzare i Trials Clinici?

THE SITUATION

50mi
average distance patient lives from nearest site

<5%
of patients participate in clinical research

49%
of participants drop out before study completion

48%
of trial sites miss enrollment targets

THE CHALLENGES

Rapid recruitment

Participant diversity

Hard-to-recruit sub-populations

Patient retention

Speed to market

Cost efficiencies

21st Century Clinical Trials…

Modernizing clinical trials

U.S. Congressional testimony: 21st century cures initiative

Quintiles is committed to bringing cures to patients, faster

The U.S. Energy & Commerce Committee is sponsoring the 21st Century Cures Initiative, a bi-partisan effort with the mission of identifying actions Congress can take to accelerate the pace of cures in America – from discovery through development to delivery – with the end goal of developing legislation to effect changes that drive new cures, faster.

On July 9, 2014, Paula Brown Stafford, president of Clinical Development at Quintiles, was invited – along with other participants from Harvard University, Yale University, the Mayo Clinic, and Johnson & Johnson – to provide expert testimony in a U.S. Congressional hearing on the topic of modernizing clinical trials. During the hearing, Stafford provided recommendations and possible approaches Congress could take to address issues in three key areas – **patients, processes and pathways** – to accelerate the delivery of therapies to patients.

Patients, processes and pathways: Reducing the cost of trials and accelerating timelines

Modernizing clinical trials is critical if we are to meet the goals we share of delivering medicines faster, at less cost, to patients who need them. Quintiles works closely with our biopharma customers to improve their probability of success, by finding ways to design and execute studies to meet this goal. Quintiles also sees opportunities for policymakers and regulators to further drive efficiencies that will help us all deliver better, faster trials and therapies to patients who need them.

FDA Work Plan - 1

Proposed FDA Work Plan for 21st Century Cures Act Innovation Account Activities

Prepared for Review by the FDA Science Board
As Required by Section 1002 of the 21st Century Cures Act (Public Law 114-255)

FDA Work Plan - 2

Patient-Focused Drug Development

- Patient Experience Data
- Patient-Focused Drug Development Guidance

Advancing New Drug Therapies

- Targeted Drugs for Rare Diseases
- Rare Pediatric Disease

FDA Work Plan - 3

Patient Access to Therapies and Information

- Accelerated approval of Regenerative Advanced Therapies
- Stabndards for Regenerative Medicine and Regenerative Advanced Therapies
- Combination Product Innovation

FDA Work Plan - 4

Modern Trial Design and Evidence Development

- Novel Clinical Trial Designs
- Real World Evidence
- Protection of Human Research Subjects
- Informed Consent Waiver

Novel Clinical Trial Designs

The Economist INTELLIGENCE UNIT HEALTHCARE

The Innovation Imperative:
The Future of Drug Development
Part I: Research Methods and Findings

A report by The Economist Intelligence Unit

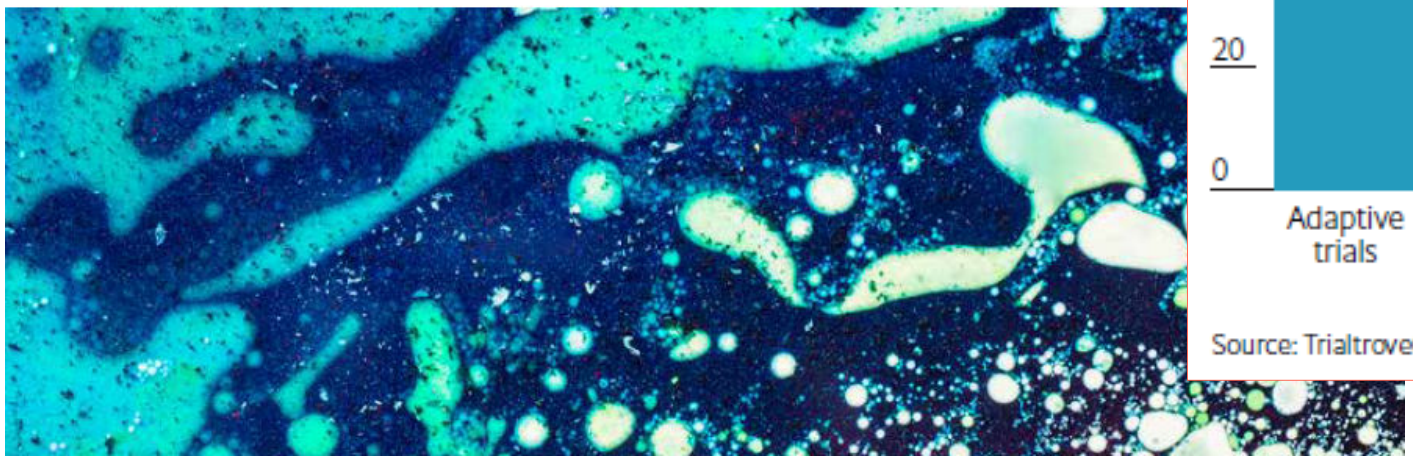
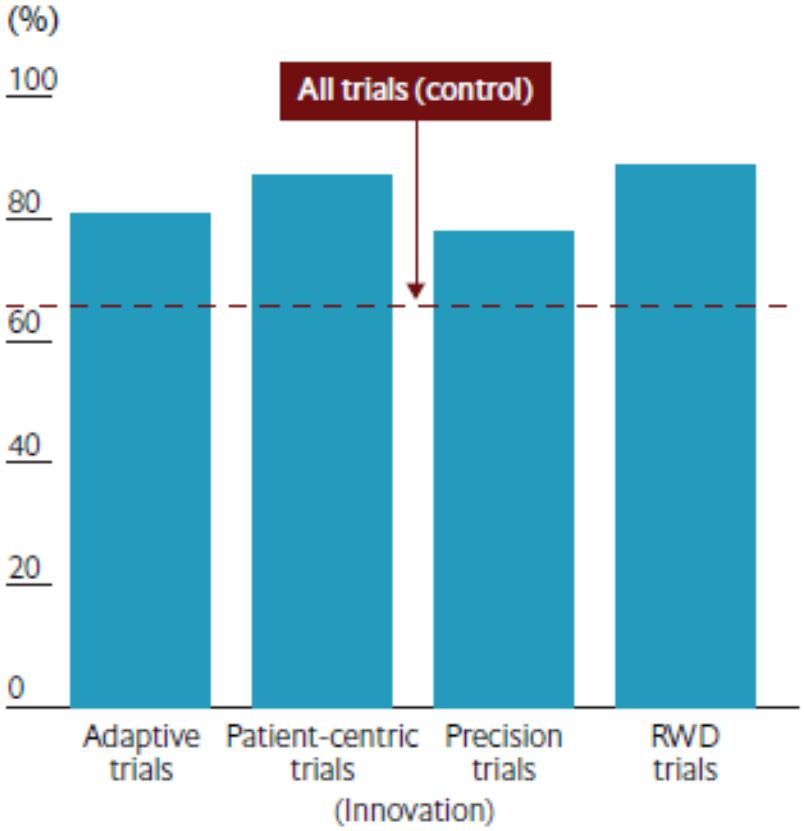


Figure 2: Phase II and III likelihood of launch for four innovations



Source: Trialtrove® | Pharmaintelligence, 2018. Data: 2012-2017.

Novel Clinical Trial Designs

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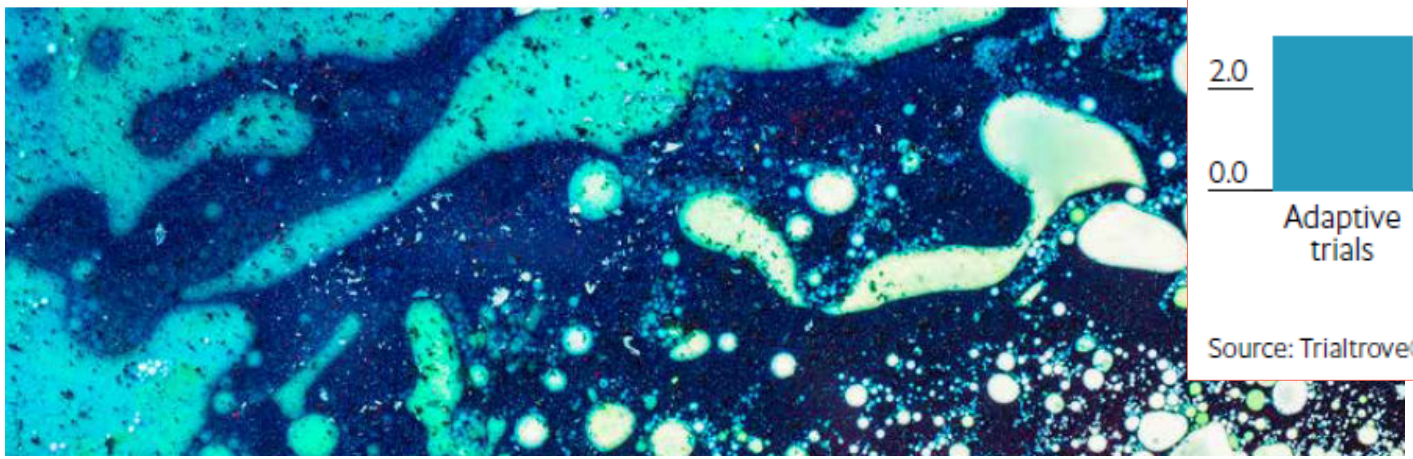
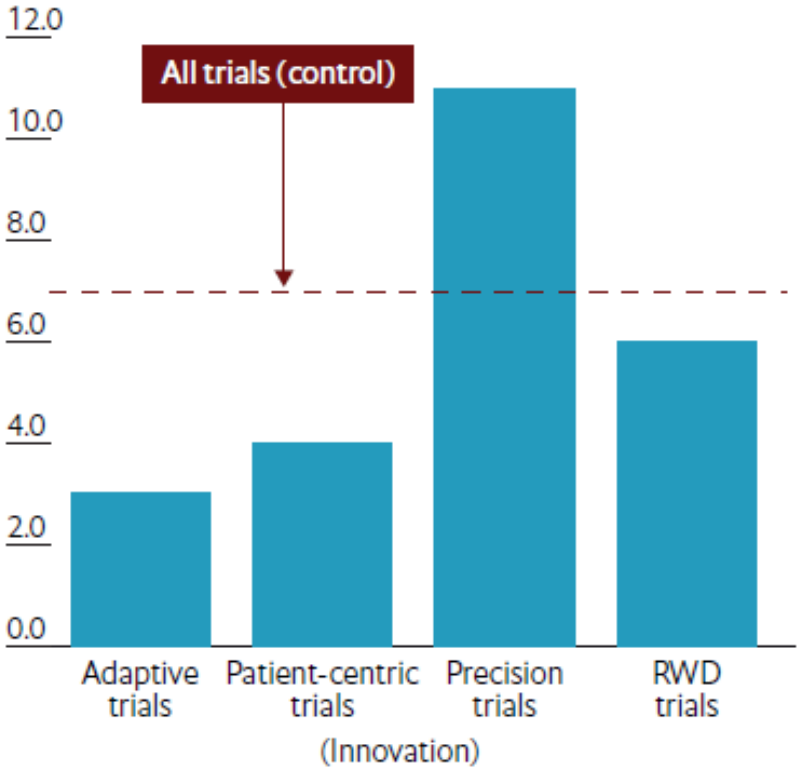


Figure 3: Average time to enroll 100 participants for four innovations



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Novel Clinical Trial Designs

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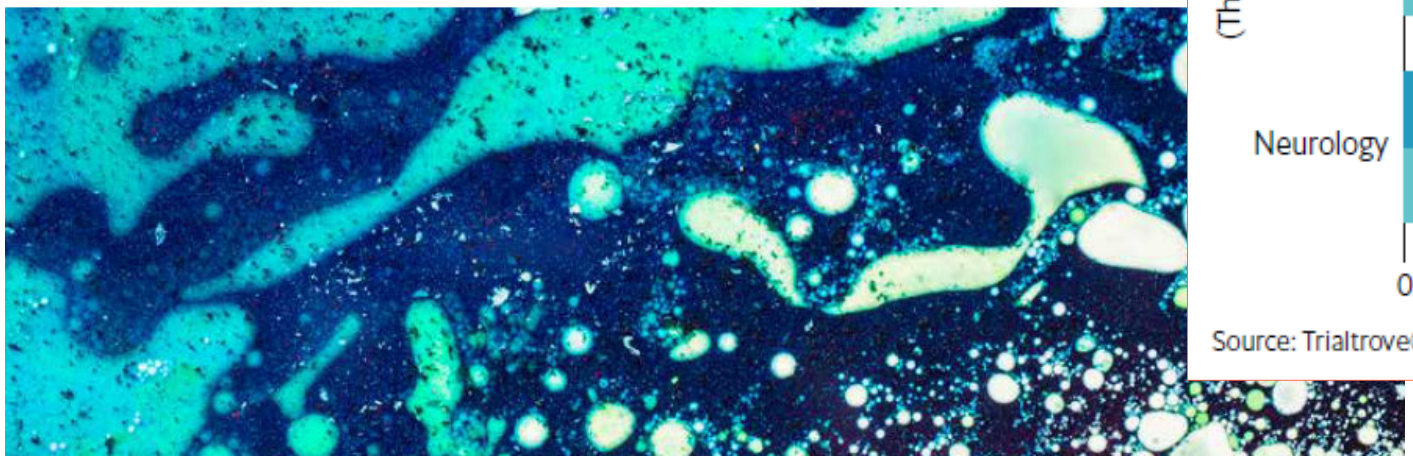
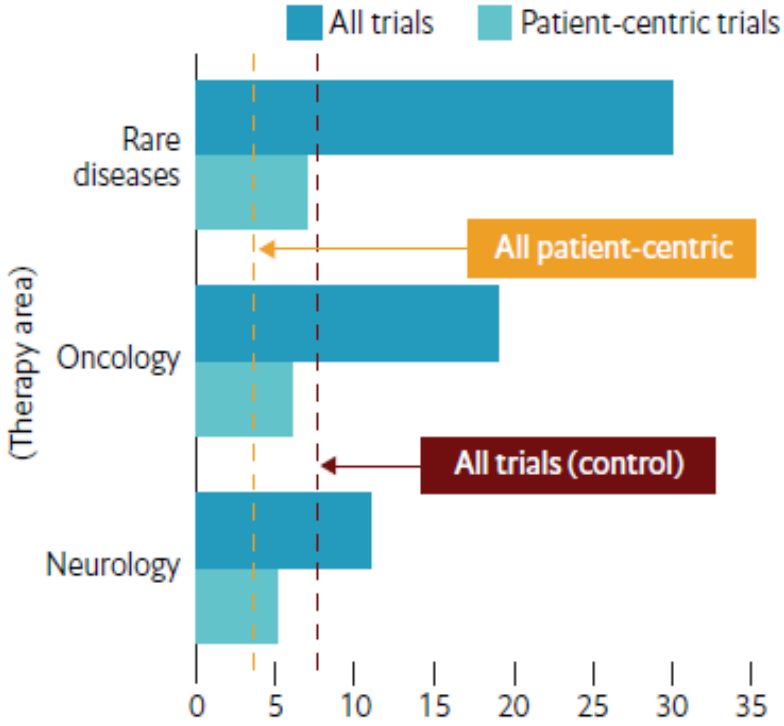


Figure 12: Average time to enroll 100 participants for patient-centric trials vs all trials

(months)



Source: Trialtrove® | Pharmaintelligence, 2018. Data: 2012-2017.

Novel Clinical Trial Designs

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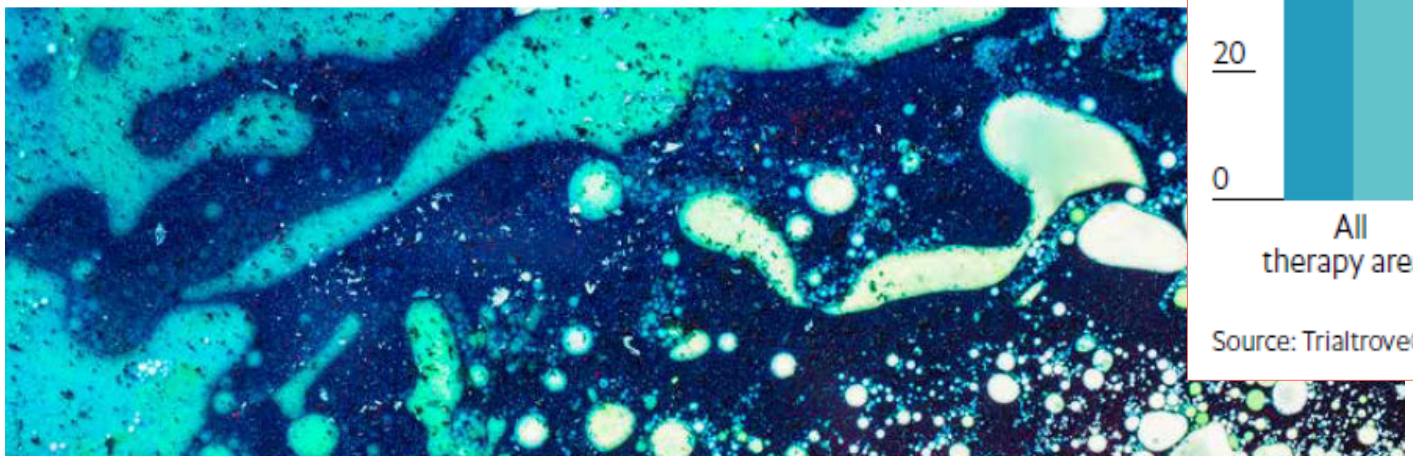
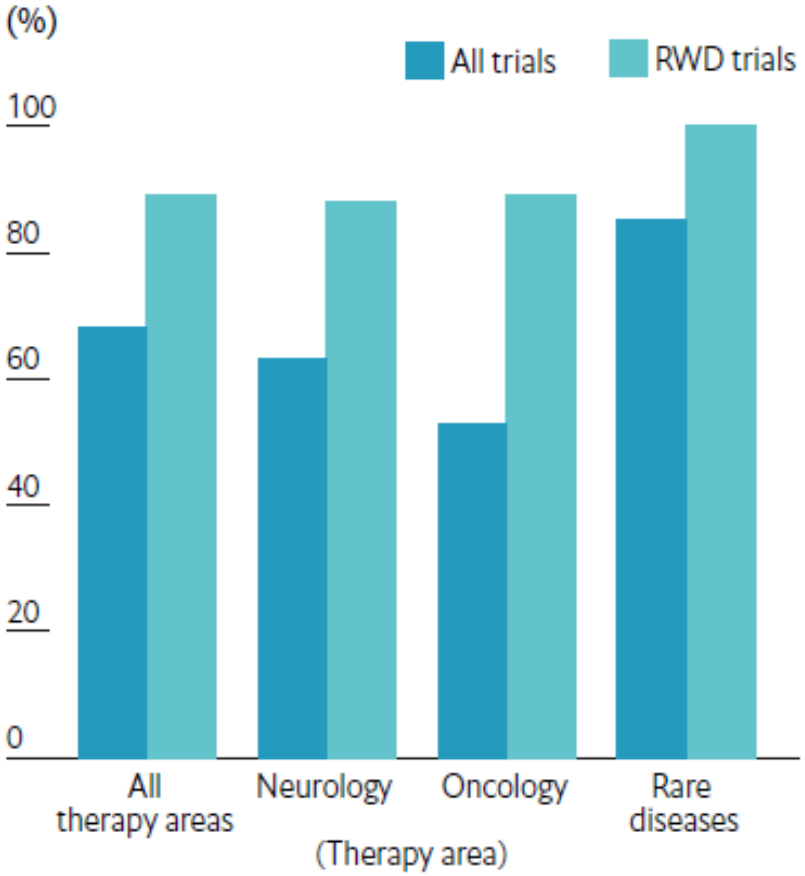


Figure 23: Phase II and III likelihood of launch



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Novel Clinical Trial Designs

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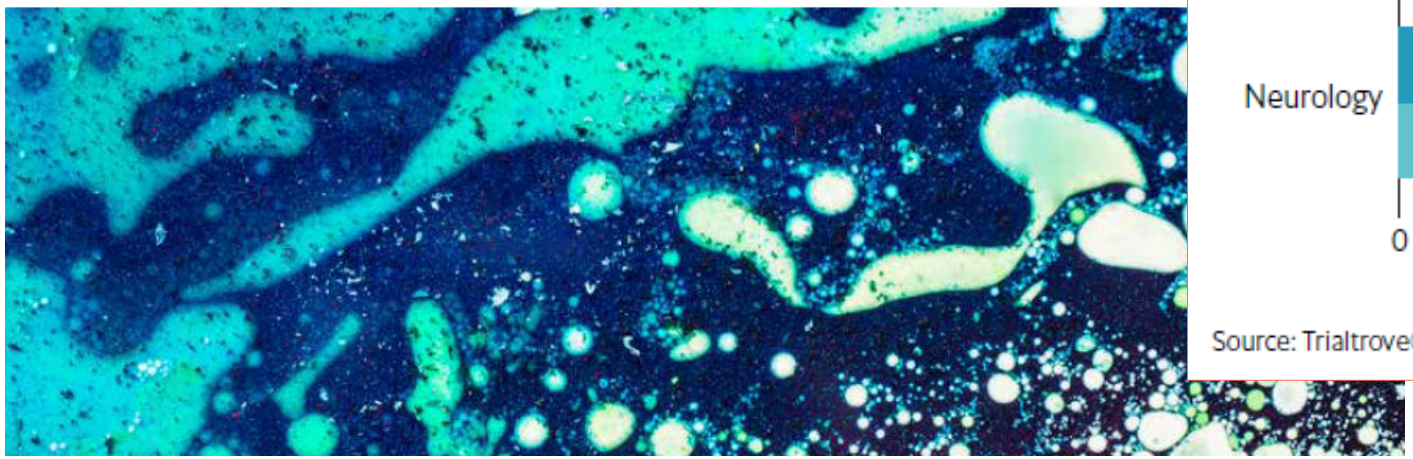
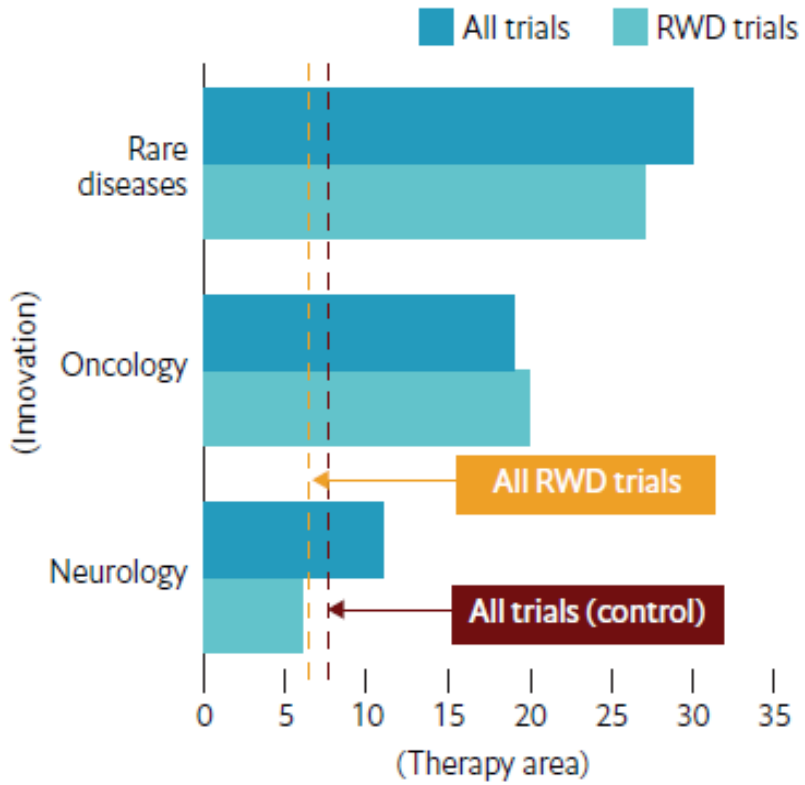


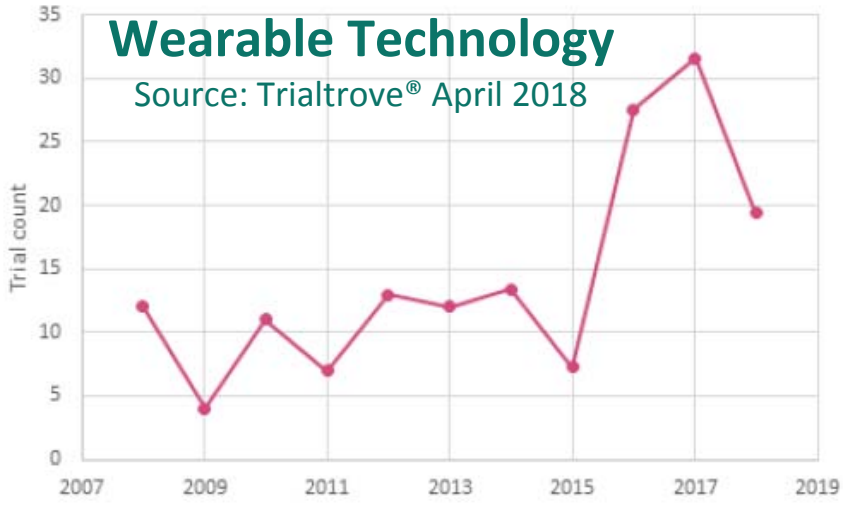
Figure 24: Average time to enroll 100 participants for RWD trials vs all trials
(months)



Source: Trialtrove® | Pharmaintelligence, 2018. Data: 2012-2017.

Come Modernizzare i Trials Clinici?

CLINICAL TRIALS **TRANSFORMATION** INITIATIVE



CTTI Recommendations: Decentralized Clinical Trials

September 2018

IQVIA™ VIRTUAL TRIALS

Accelerate your timelines with patient-centered drug development

Siteless Trials

To modernize ophtalmic clinical trials…

NOVARTIS

Novartis launches FocalView app, providing opportunity for patients to participate in ophthalmology clinical trials from home

Apr 25, 2018

- *FocalView is a first-of-its-kind app designed to modernize ophthalmic clinical trials, making them more accessible and flexible*
- *Using patients' self-recorded measurements, FocalView aims to enable more sensitive trial endpoints and more accurate patient-reported outcomes*
- *Using the Apple ResearchKit platform, Novartis is making FocalView vision tests freely available to the scientific community*

Come Modernizzare i Trials Clinici?

N ENGL J MED 378;8 NEJM.ORG FEBRUARY 22, 2018

SOUNDING BOARD

A Framework for Ethical Payment to Research Participants

Luke Gelinas, Ph.D., Emily A. Largent, J.D., Ph.D., R.N., I. Glenn Cohen, J.D.,
Susan Kornetsky, M.P.H., Barbara E. Bierer, M.D., and Holly Fernandez Lynch, J.D.

Half of clinical-trial sites offer free transportation to patients

Consent forms and reimbursement are the main deterrents of offering the service.

MMM-ONLINE.COM

non è accettabile che un paziente debba sostenere spese di tasca propria per partecipare ad una sperimentazione clinica

Come Modernizzare i Trials Clinici?

GIHTAD (2018) 11:4

ARTICOLO ORIGINALE

Evoluzione dei ruoli del paziente nella ricerca e nella terapia farmacologica
Patient engagement, patient input, expert patient

Evolution of patient roles in drug research and therapy
Patient engagement, patient input, expert patient

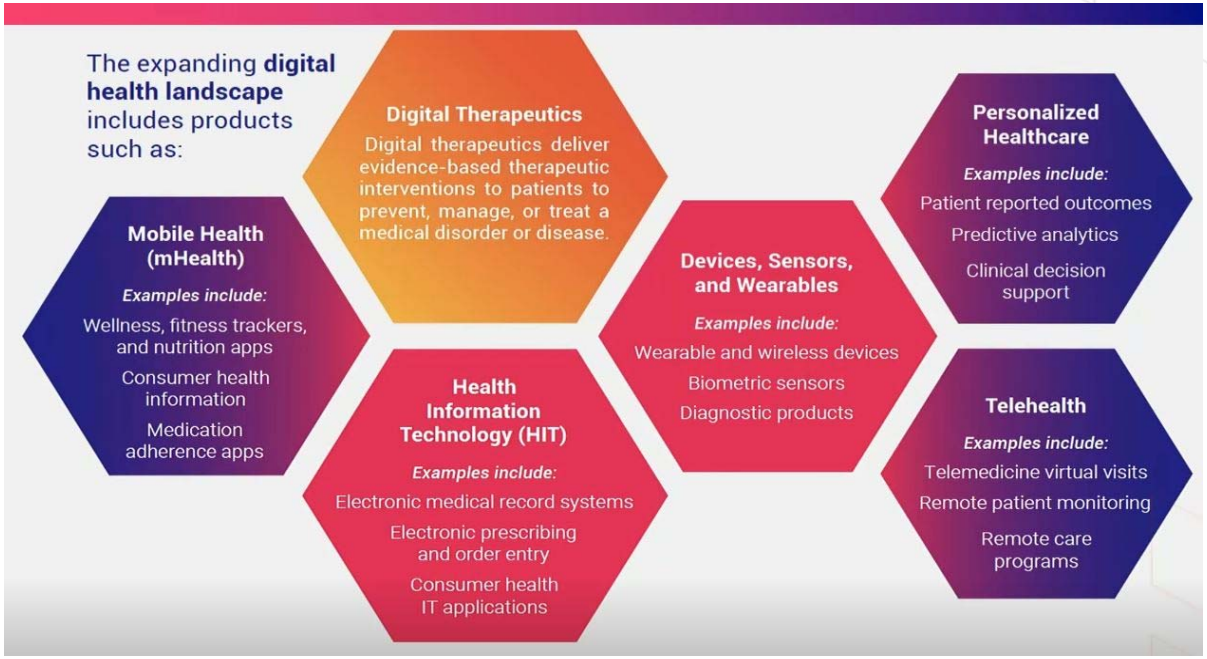
Roberta Bodini[1,4], Maurizio Marvisi[2], Chiara Andreoli[1], Romeo Poli[3], Fabio Arpinelli[1], Giuseppe Recchia[4], Adriano Vaghi[5]

FDA Work Plan - 5

Medical Device Innovation

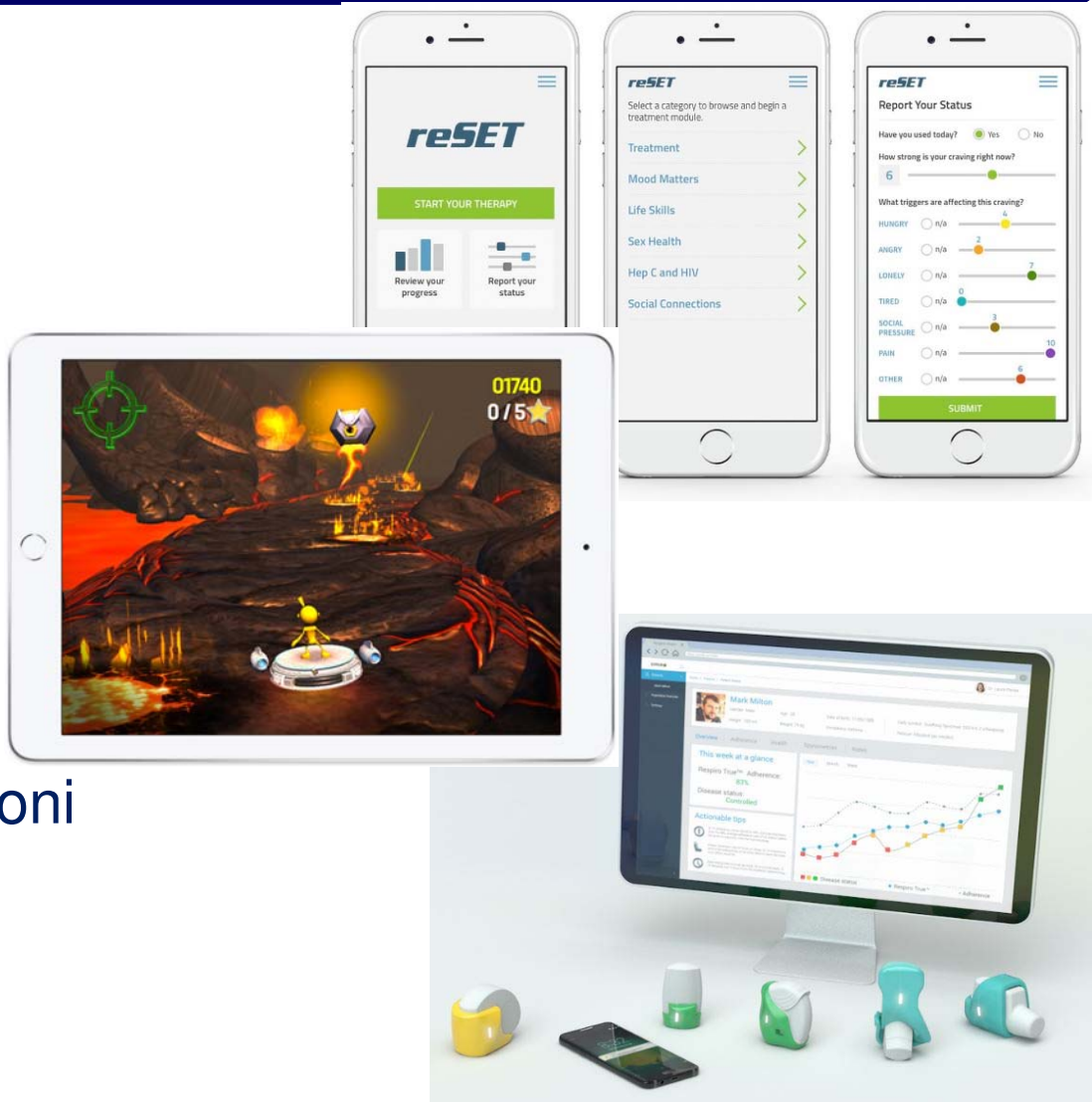
- Breakthrough Devices
- Clarifyng Medical Devices Software

Digital Therapeutics Alliance



DTx – Che cosa sono?

- Software come principio attivo
- Sviluppata attraverso RCTs
- Autorizzata da enti regolatori
- Sottoposta a valutazione HTA
- Rimborsata da SSN/assicurazioni
- Prescritta dal medico



DTx – Come funzionano?

Combinazione con il farmaco

Terapia di Combinazione

- Monitoraggio della aderenza alla terapia
- Raccomandazioni sul dosaggio del farmaco
- Proposta di intervento medico

- *Diabete (Roche)*
- *Oncologia (AZ, Roche)*
- *Malattie Respiratorie (GSK)*

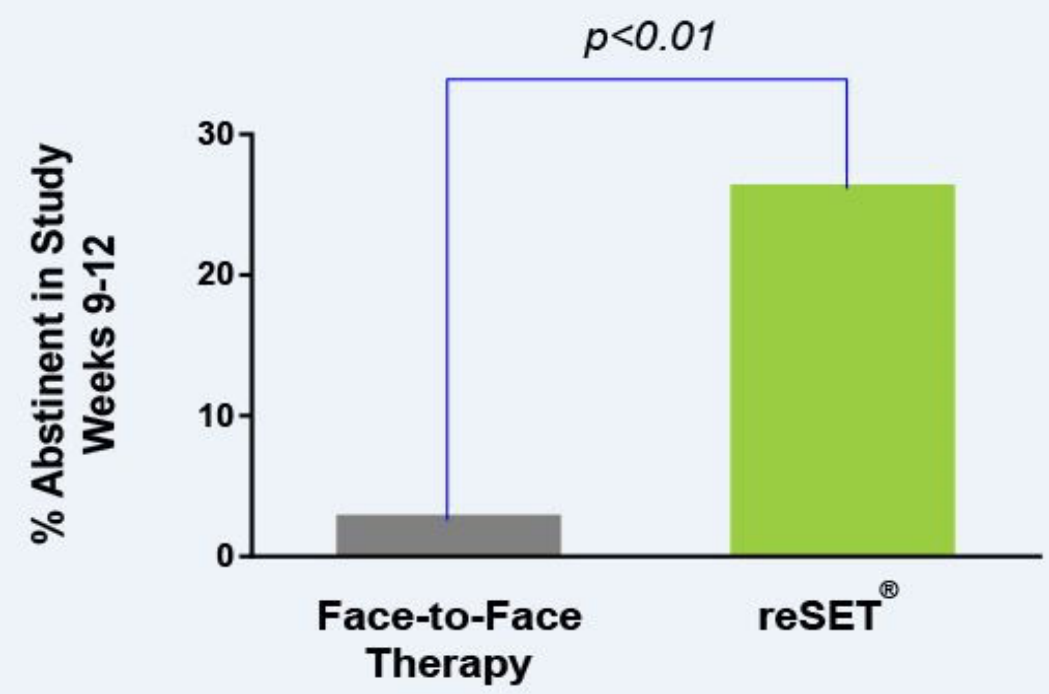
Alternativa al farmaco

Monoterapia

- Interventi cognitivo – comportamentali

- *Dipendenze (Novartis)*
- *Insonnia*
- *Depressione*
- *ADHD*
- *Schizofrenia (Novartis)*

DTx – Quali prove di efficacia?



- **Randomizzazione ☑**
- **Controllo ☑**
- **Contesto ☒**

DTx – Quali prove di efficacia?

INDICATIONS FOR USE

reSET is intended to provide cognitive behavioral therapy, as an adjunct to a contingency management system, for patients 18 years of age and older who are currently enrolled in outpatient treatment under the supervision of a clinician. reSET is indicated as a 12 week (90 days) prescription-only treatment for patients with substance use disorder (SUD), who are not currently on opioid replacement therapy, who do not abuse alcohol solely, or who do not abuse opioids as their primary substance of abuse.

It is intended to:

- increase abstinence from a patient's substances of abuse during treatment, and
- increase retention in the outpatient treatment program

LIMITATIONS

- For prescription use only.
- The reSET device is not intended to be used as a stand-alone treatment device or to be used as a substitute for medication
- The benefit of treatment with reSET on abstinence was not evaluated beyond 12 weeks of treatment.

DTx – Dove?


DigitalHealth.London
Digital Therapeutics
in the NHS:
The rise of digital therapies
& the evidence that proves
they work
Tuesday, 24 April 2018
#DHLCOLLABORATE
#DigitalHealthLondon
IQVIA
NHS England
DIGITAL THERAPEUTICS ALLIANCE
hin
IMPERIAL COLLEGE HEALTH PARTNERS
UCLPartners
MEDCITY

DTx – Proposte per lo Sviluppo in Italia

Chiarire Aree Incertezza

- Entità e natura delle prove di efficacia
  - Sperimentazione Clinica Randomizzata e Controllata in contesto naturale
- Valutazione Tecnologica e modelli di rimborso
- Introduzione nella pratica medica e sanitaria

Creare Condizioni Abilitanti

- Informazione e Formazione degli Operatori Sanitari
- Consapevolezza nei pazienti / cittadini
- Scientific Advice esperto
- Qualità della valutazione
- Accesso al paziente / Rimborso
- Network di sperimentazione clinica

1. DTx – Proposte per Ricerca e Accesso in Italia….

SOCIETÀ ITALIANA DI PNEUMOLOGIA

XIX CONGRESSO NAZIONALE DELLA PNEUMOLOGIA

SAVE THE DATE

Venezia 13-15 Ottobre 2018 VENEZIA LIDO

Siamo preparati al decollo?

#DTxITA

Digital Therapeutics In Medicina Respiratoria

Roberta Bodini[1], Martijn Grinovero[2], Claudio Micheletto[3], Franco Del Zotti[4], Angelo Corsico[5], Giuseppe Recchia[1], Salvatore D'Antonio[6], Fulvio Braido[7]

[1]Fondazione SmithKline, Verona; [2]Amiko Digital Health,Londra; [3]UOC Pneumologia Ospedale di Legnago; [4]Medicina Generale,Azienda ULSS 9,Verona; 5Pneumologia,Fondazione IRCCS Policlinico San Matteo Pavia; [6]Associazione Italiana Pazienti BPCO Onlus Roma; [7]Clinica Malattie Respiratorie e Allergologia,Azienda Policlinico

2. Modernizzare i Trials Clinici in Italia….?

#AIxRCTs