



UNIVERSITÀ
DEGLI STUDI DI TRIESTE



Corso di Laurea in Ingegneria Clinica e Biomedica Informatica Medica I

mHealth App development: Introduzione

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The app world

JUL
2020

DIGITAL AROUND THE WORLD IN JULY 2020

THE ESSENTIAL HEADLINE DATA YOU NEED TO UNDERSTAND MOBILE, INTERNET, AND SOCIAL MEDIA USE

TOTAL
POPULATION



7.79
BILLION

URBANISATION:

56%

UNIQUE MOBILE
PHONE USERS



5.15
BILLION

PENETRATION:

66%

INTERNET
USERS



4.57
BILLION

PENETRATION:

59%

ACTIVE SOCIAL
MEDIA USERS



3.96
BILLION

PENETRATION:

51%

7

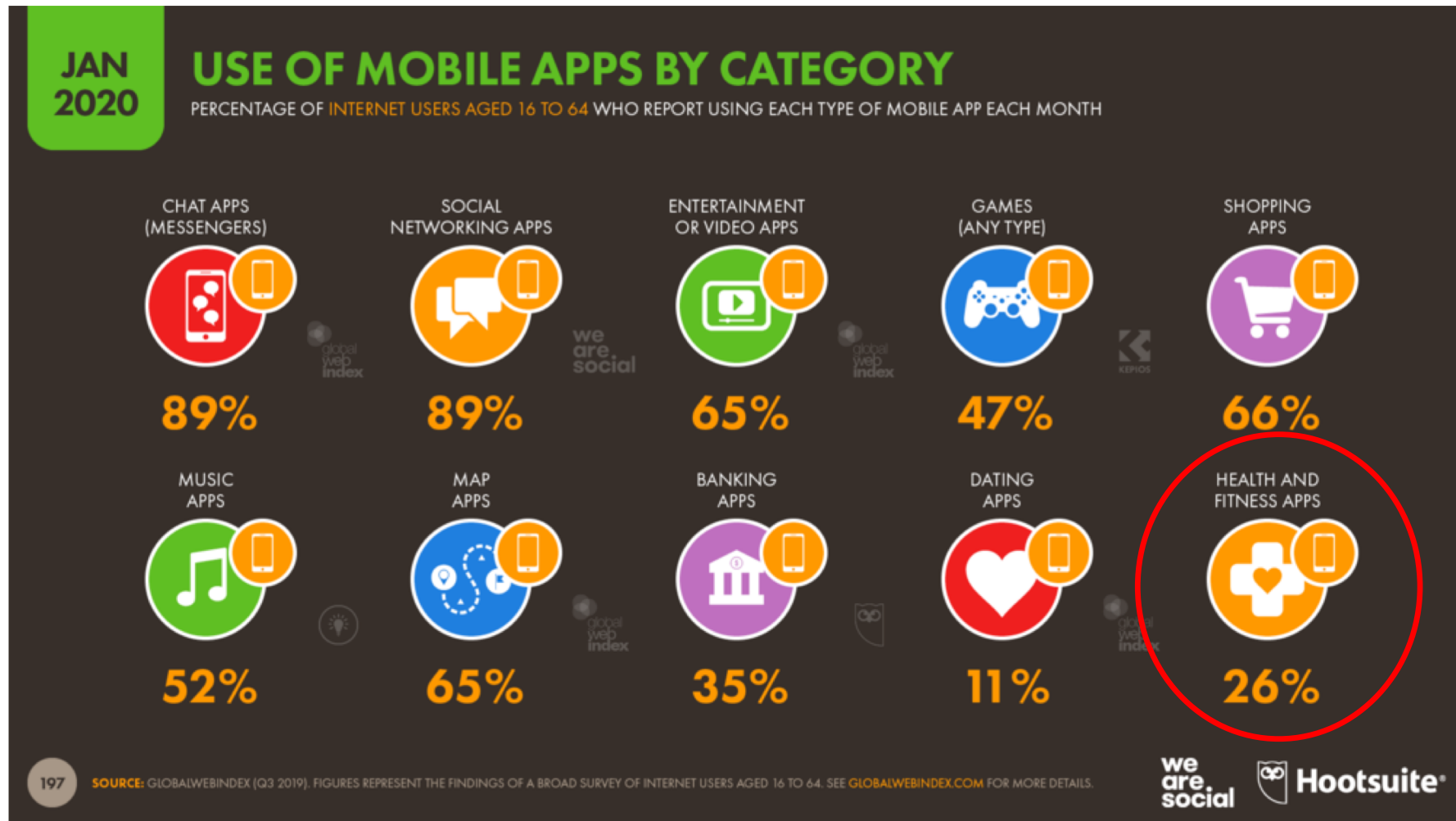
SOURCES: KEPIOS ANALYSIS; UNITED NATIONS; LOCAL GOVERNMENT BODIES; GSMA INTELLIGENCE; ITU; GLOBALWEBINDEX; EUROSTAT; CNNIC; APJII; SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS; SOCIAL MEDIA COMPANIES' ANNOUNCEMENTS AND EARNINGS REPORTS; MEDIASCOPE; CAFEBAZAAR (ALL LATEST AVAILABLE DATA IN JULY 2020).
COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES. DATA MAY NOT BE DIRECTLY COMPARABLE TO PREVIOUS REPORTS.

we
are
social

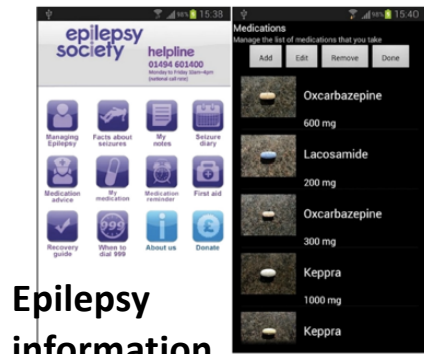


Hootsuite®

The app world



Health apps: esempi



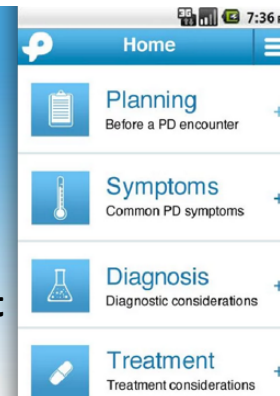
Epilepsy information



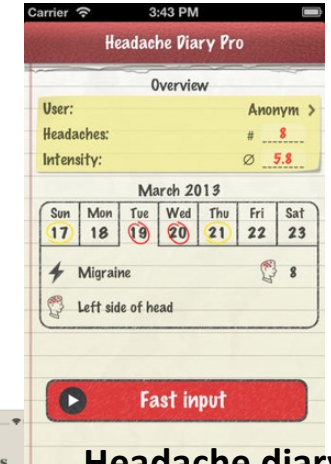
Seizure detection



Parkinson's management



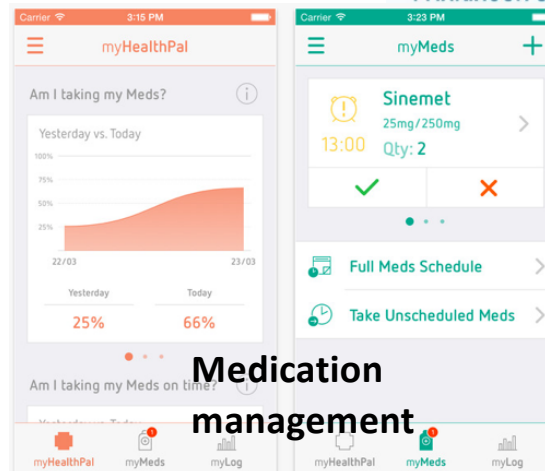
Post-stroke recovery



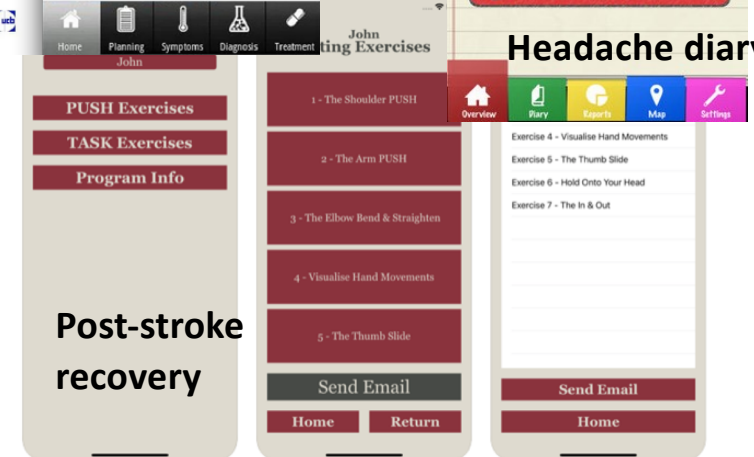
Headache diary



Cognitive Behavioural Therapy



Medication management



Post-stroke recovery

Apps, wereable & implantable devices

Hollywog launches smartphone-controlled pain management wearable

By Dave Musolo | October 09, 2017



The number of devices connected to the Internet was 12.5 billion in 2010, making the number of connected devices per person >1 (1.84) for the first time in history. Now they are 25 billions



Medtronic implantable device for treating chronic pain by delivering neurostimulation at the spinal cord is connected to a Samsung Galaxy Tab S2, to allow data capturing and IPG controlling



GIZWEAR.net

SOWATCH: lo smartwatch che previene l'ictus

Digital Health - Ultime Notizie | 26/09/2016 | Gianluca Patrigiani

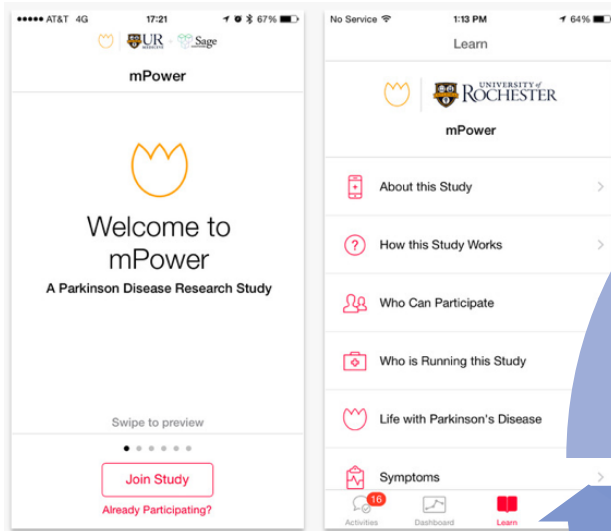


Hodei Technology helps hospitals use Google Glass for surgical collaboration; rural telemedicine



THIM, il primo wearable al mondo "migliora-sonno" | Video

Expectations



Data collection for research

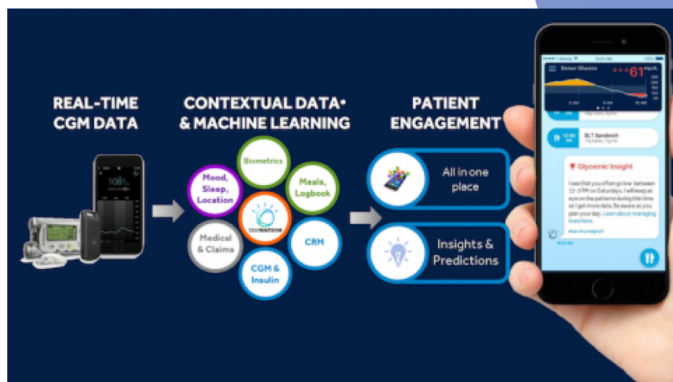
Healthcare inclusion



Personalized care

Real-time communication

The mobile app Orchestra connects patients with their doctors for more continuous care, while researchers have access to useful data

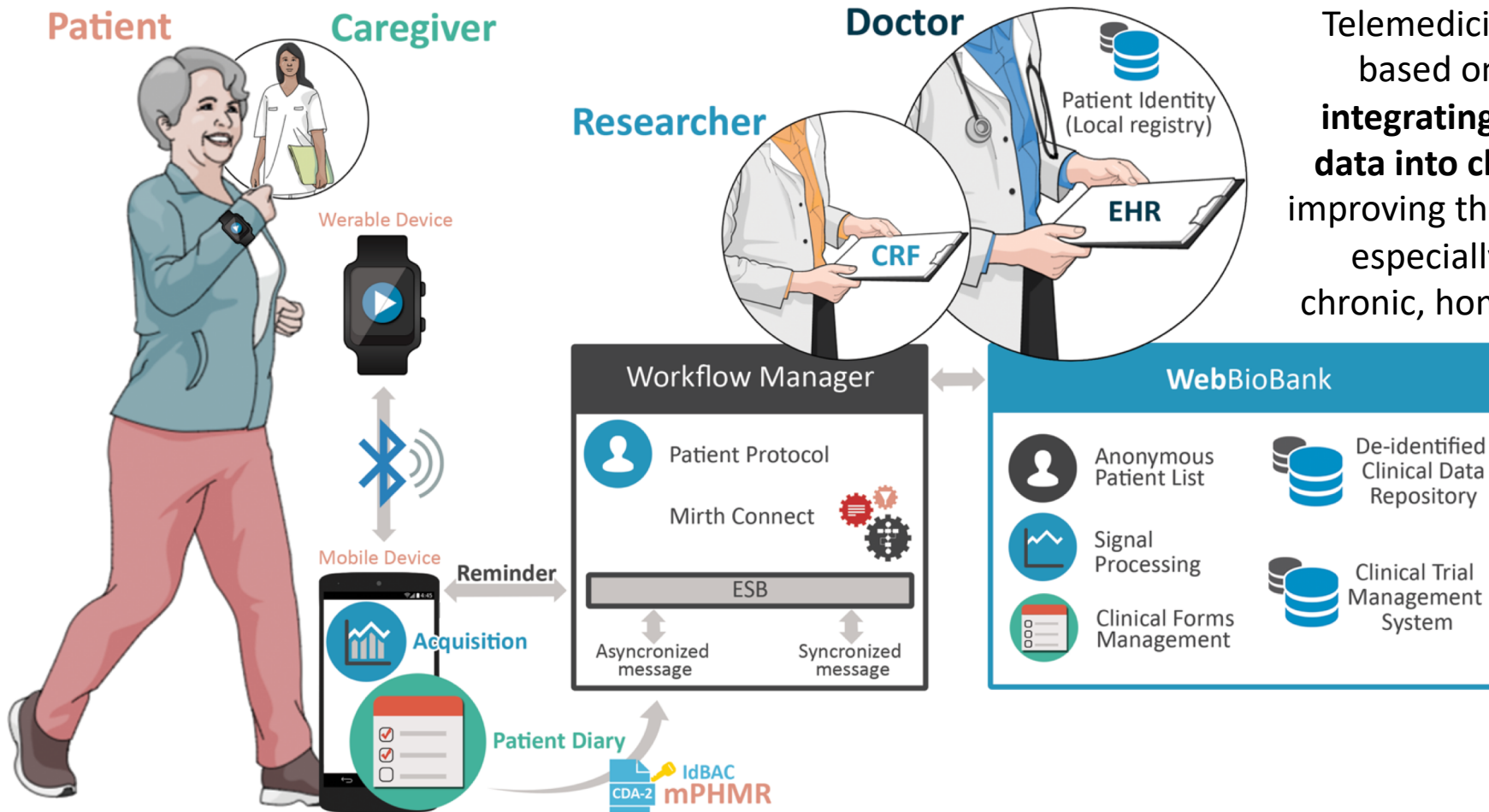


INTERACTIVE JOURNAL OF MEDICAL RE

[Original Paper](#)

WhatsApp Messenger as an Adjunctive Tool for Telemedicine: An Overview

mHealth-IoT-telemedicine ecosystem for clinical trials: an example



Telemedicine/app ecosystems based on standards allow **integrating patient-generated data into clinical research** thus improving the reliability of results, especially for longitudinal, chronic, home-based monitoring

mHealth-IoT-telemedicine ecosystem for clinical trials: an example

List Management

Upload an XML file for filling in the Patient's personal details

Select a XML File Clear sensitive data New Patient Download XML Patient Data

Patient List - Ospedale Maggiore Policlinico - U.O. di Neurofisiopatologia Clinica, Neurochirurgia

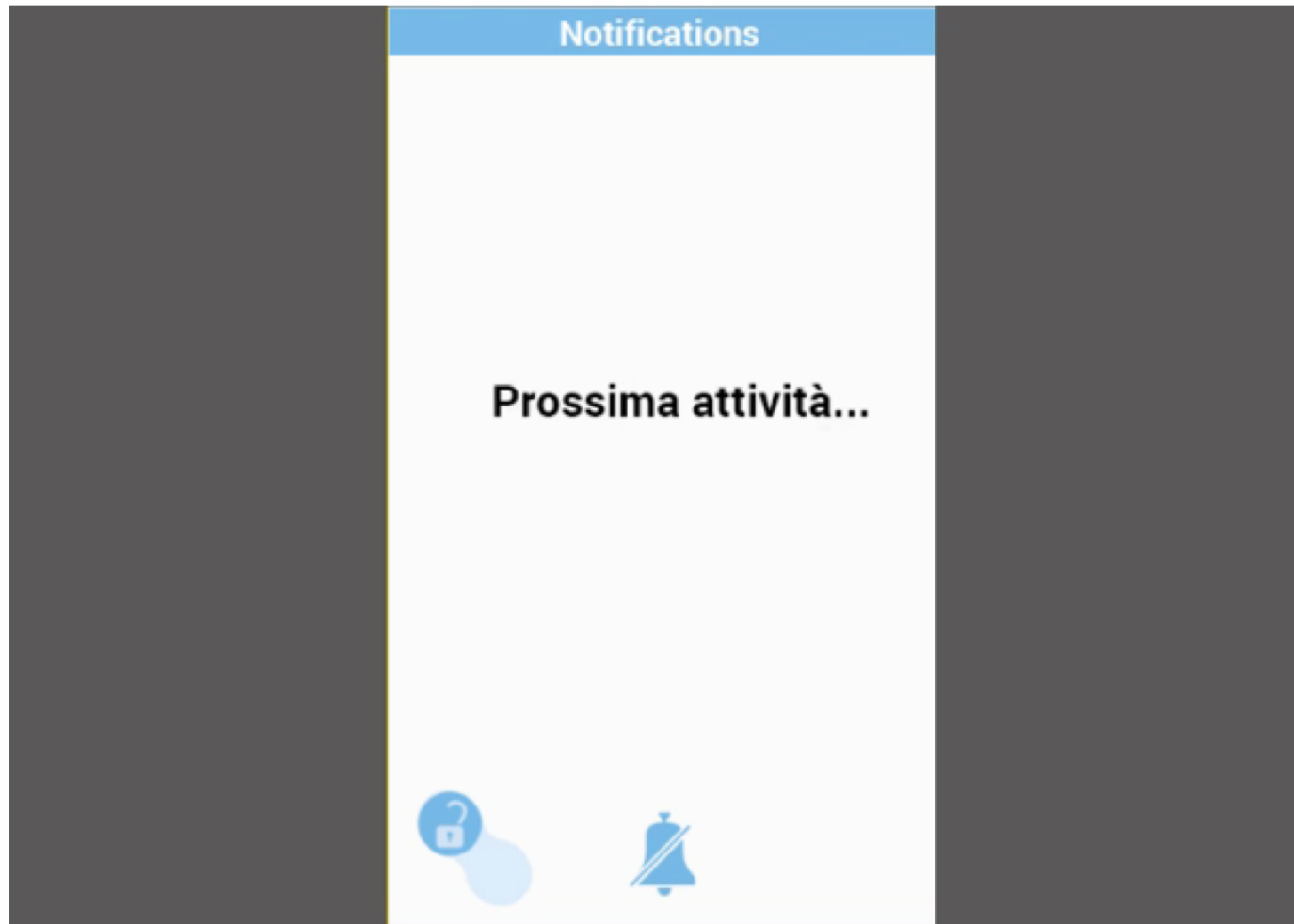
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IdEHR	IdBAC	Data	Protocols	Code	Surname	Name	Sex	DateOfBirth	TaxCode
3317	11461	10/07/2017 23:02:48		722					
3321	11465	18/10/2017 17:41:39		P004					
3316	11460	10/07/2017 23:01:40		122					
3320	11464	13/07/2017 16:57:25		123					
3318	11462	11/07/2017 11:39:04		812					
3319	11463	11/07/2017 17:30:14		890					
3323	11467	19/10/2017 15:36:11		P001					
3322	11466	19/10/2017 15:23:06		P002					
3324	11468	21/10/2017 16:48:32		P003					
98	42	22/10/2011 17:49:37							

Showing 1 to 10 of 257 entries

Previous 1 2 3 4 5 ... 26 Next

mHealth-IoT-telemedicine ecosystem for clinical trials: an example



Come sviluppare: norme

DISPOSITIVO MEDICO

“qualsiasi strumento, apparecchio, impianto, sostanza o altro prodotto, utilizzato da solo o in combinazione, compreso il **software informatico** impiegato per il corretto funzionamento e destinato dal fabbricante ad essere impiegato nell'uomo a scopo di:

- diagnosi, prevenzione, controllo, terapia o attenuazione di una malattia;
 - diagnosi, controllo, terapia, attenuazione o compensazione di un trauma o di un handicap;
 - studio, sostituzione o modifica dell'anatomia o di un processo fisiologico;
- [...]”.

UNI CEI EN ISO 13485:2016 – <i>Sistema di Gestione di Qualità</i>				
IEC 62304:2006 – <i>Ciclo di vita del software</i>				
Analisi dei requisiti e pianificazione del progetto	UNI CEI EN ISO 14971:2020 - <i>Gestione del rischio</i>	CEI EN 62366:2015 - <i>Usability</i>	Documentazione	Matrici di tracciabilità
Analisi dei rischi connessi al software				
Progettazione architettura e design				
Pianificazione Verifica e Validazione (V&V)				
Implementazione				
Verifica				
Validazione				
Rilascio				