TMTT en VMD. Utilidad del modelo CAIDER

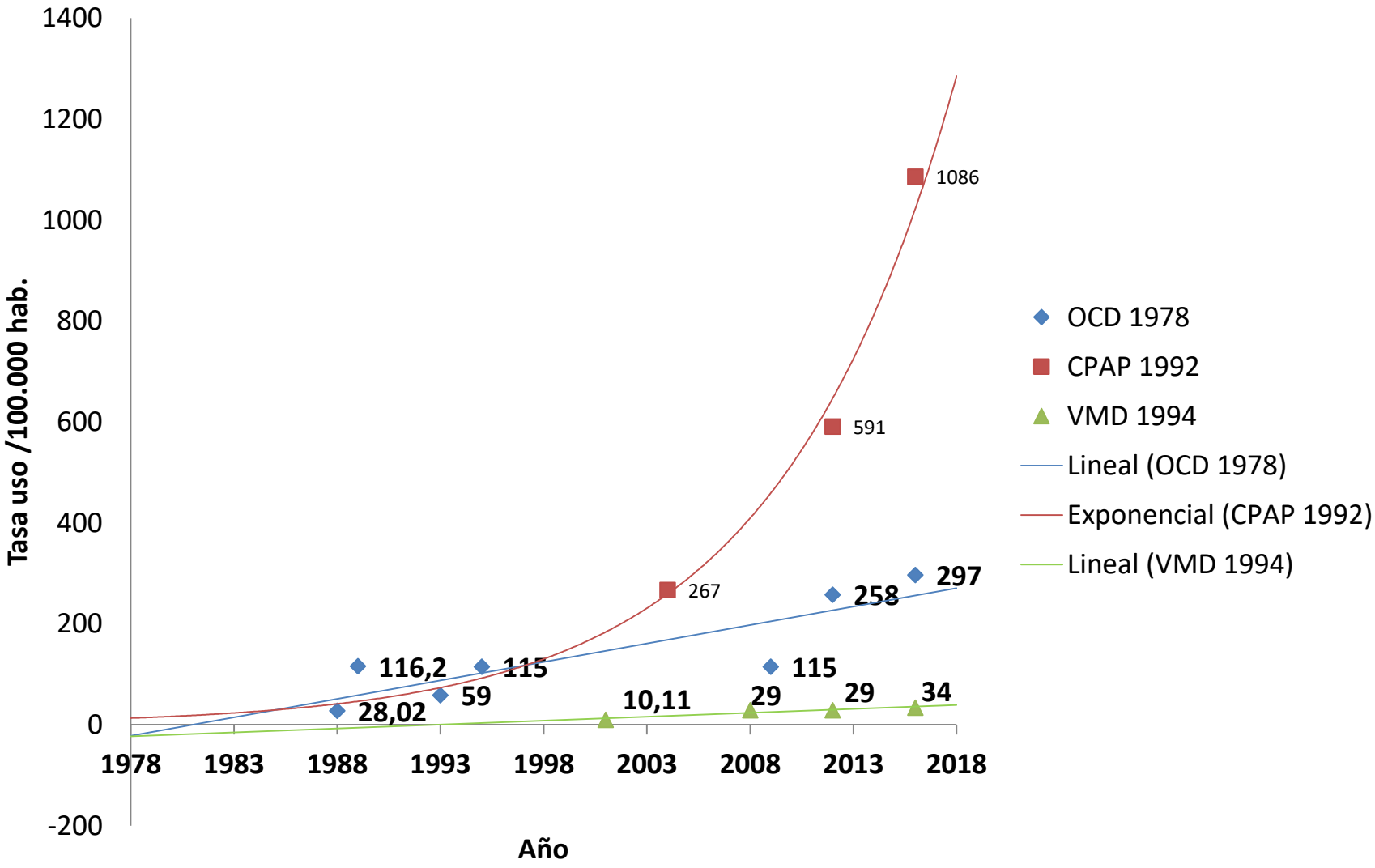
A. Antón
panton@santpau.cat

Conflicto de intereses

- Beca Linde; curso VM Sat Pau Linde
- Advisory board; Res Med

Indice (10-15´)

- VMD hoy, Icare Survey
- TMTT en VMD
- Modelo CAIDER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OCD 1978
CPAP 1992
VMD 1994
Lineal (OCD 1978)
Exponencial (CPAP 1992)
Lineal (VMD 1994)

BMC Health Services Research

BioMed Central

Research article

Open Access

Prolonged acute mechanical ventilation and hospital bed utilization in 2020 in the United States: implications for budgets, plant and personnel planning

Marya D Zilberberg*[1,2] and Andrew F Shorr[3]

Address: [1]School of Public Health and Health Sciences, University of Massachusetts, Amherst, MA, USA, [2]Evi Med Research Group, LLC, Goshen, MA, USA and [3]Division of Pulmonary and Critical Care, Washington Hospital Center, Washington, DC, USA

Email: Marya D Zilberberg* - mzilberb@schoolph.umass.edu; Andrew F Shorr - AFShorr@dnamail.com

* Corresponding author

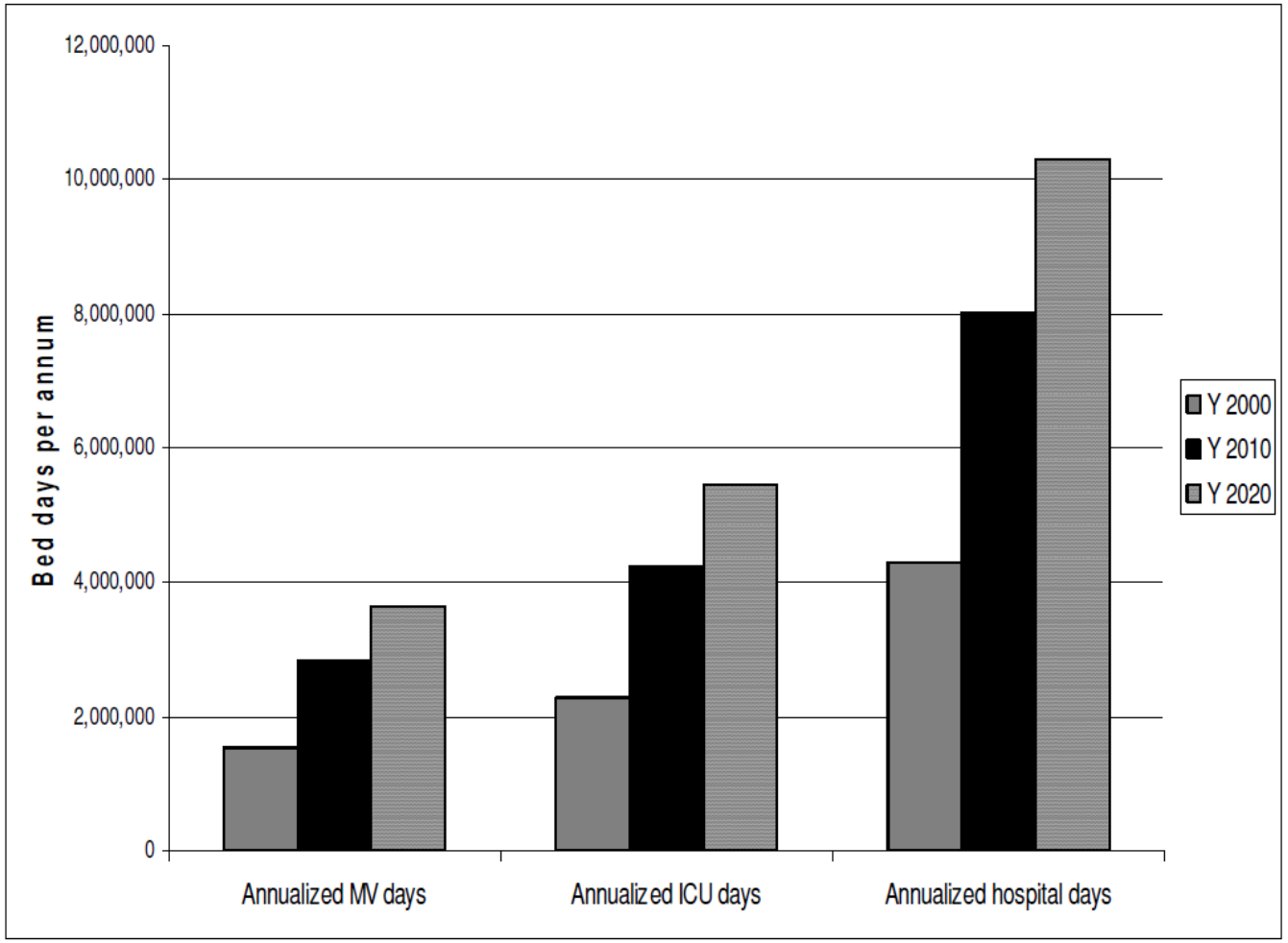


Figure 1
Projected Annual Hospitalization Days in 10-year Increments Spent by a Patient on Prolonged Acute Mechanical Ventilation (PAMV) in Various Strata of Hospital Care. ICU is intensive care unit. MV is mechanical ventilation. Y is year.

Zilberg M *et al.* BMJ Health Services Research 2008; 8: 242

iCARE
iberia respiratory care program

ResMed

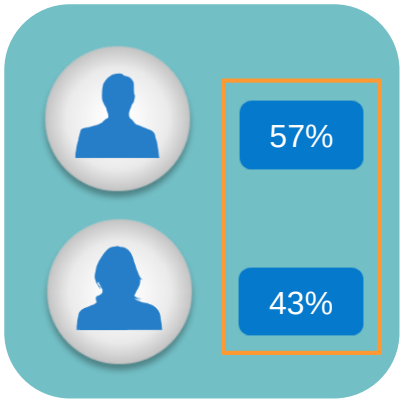
NIV Clinical Working Habits (Spain and Portugal)

2016

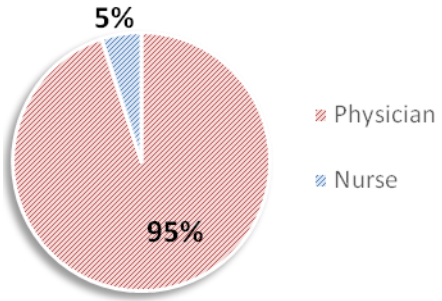
Respondents Split: Spain

Country

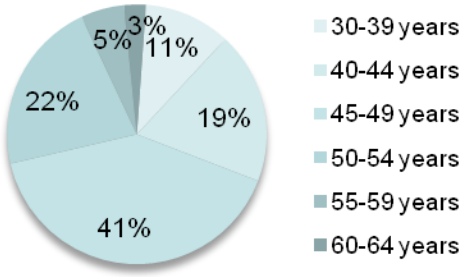
Gender



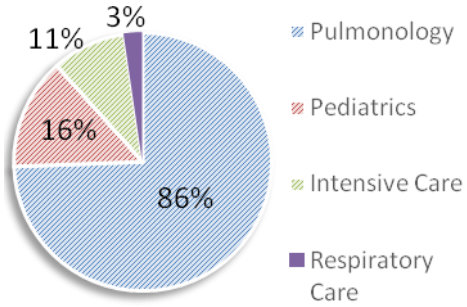
Job Title



Age Range



Medical Speciality



* A physician may have several specialities

Region/Province

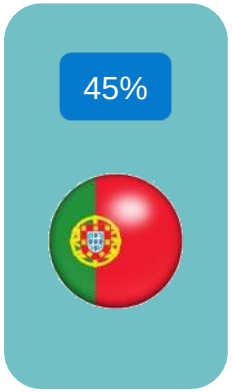
Alicante	3%	Las Palmas	3%
Barcelona	22%	Madrid	25%
Burgos	3%	Murcia	3%
Cáceres	3%	Pontevedra	3%
Cádiz	3%	Asturias	3%
Cantabria	6%	Sevilla	11%
Granada	3%	Valencia	6%
		Zaragoza	6%

Sample: 36

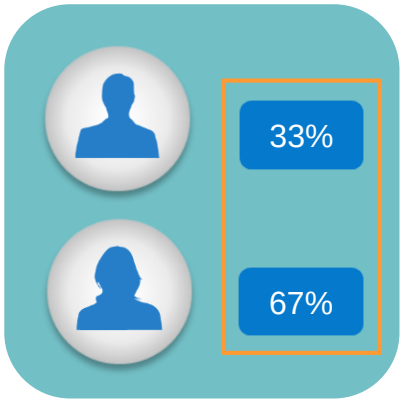
©ResMed 2014 I

Respondents Split: Portugal

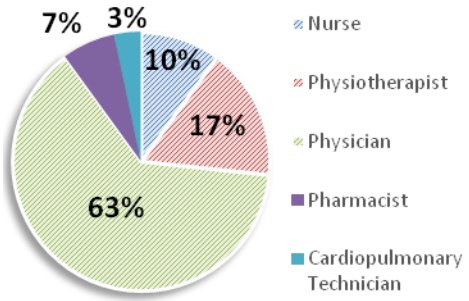
Country



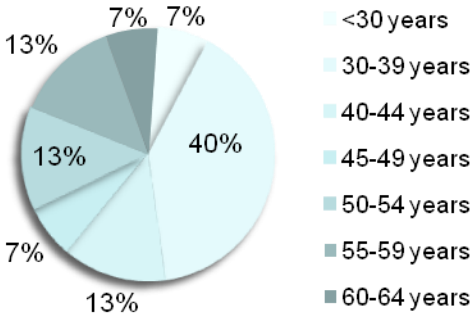
Gender



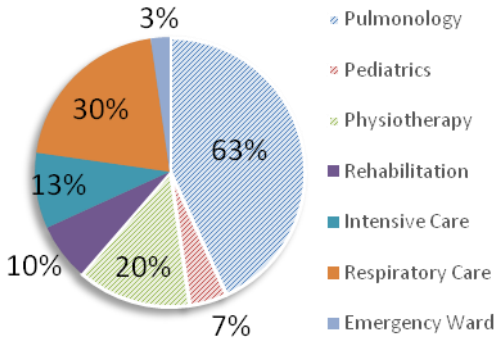
Job Title



Age Interval



Medical Specialty



* A physician may have several specialities

Region/Province

Braga	17%
Castelo Branco	3%
Coímbra	10%
Faro	7%
Lisboa	17%
Porto	43%
Vila real	3%

Sample: 30

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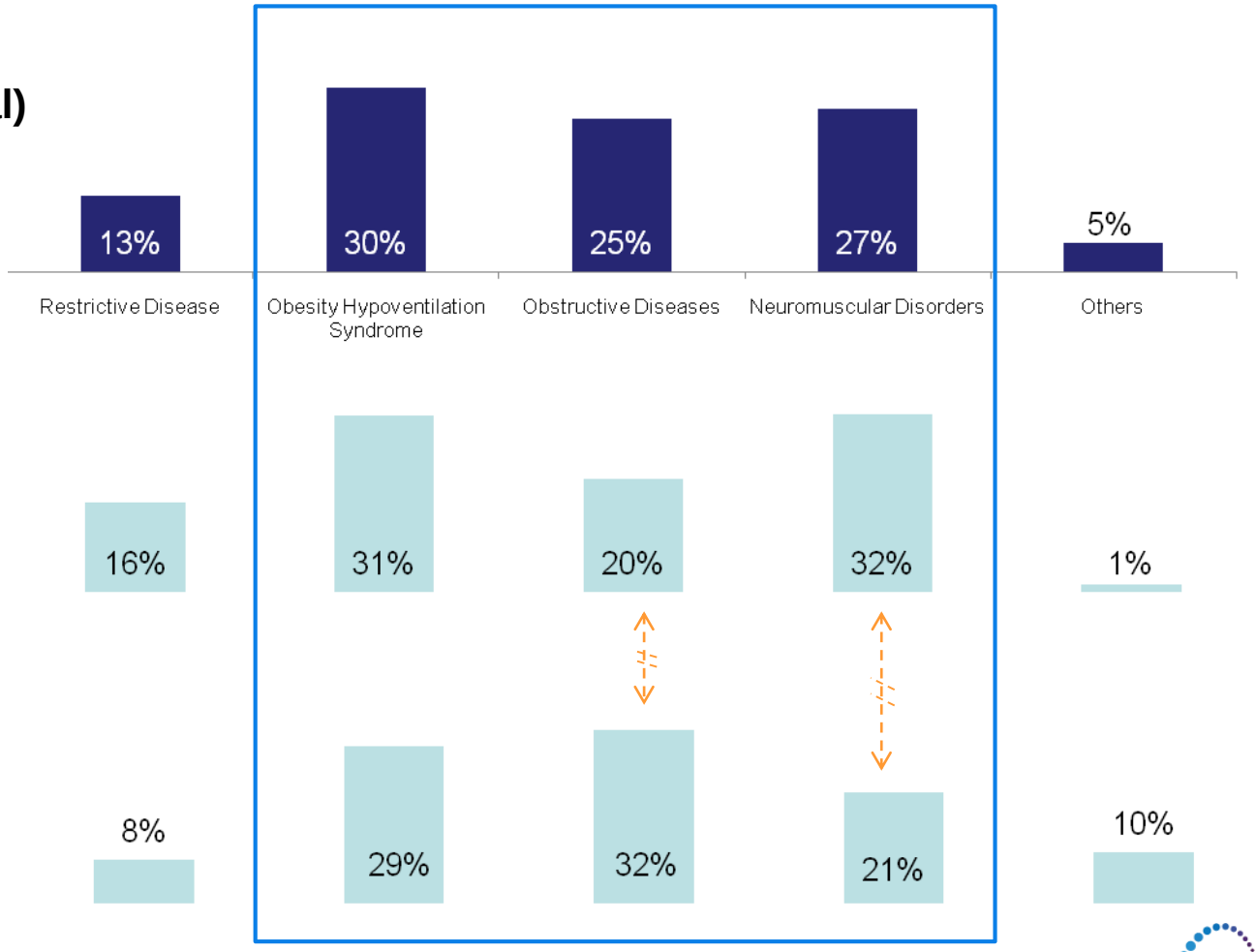
“Obesity Hypoventilation Syndrome”, “Neuromuscular Disorders” and “Obstructive Diseases” are the 3 main diseases for home NIV

3.2.1. What is the profile of these patients?

Global (Spain + Portugal)

Global Sample: 66



Spain

Spain Sample: 36

Portugal

Portugal Sample: 30

Patients average percentage with each profile

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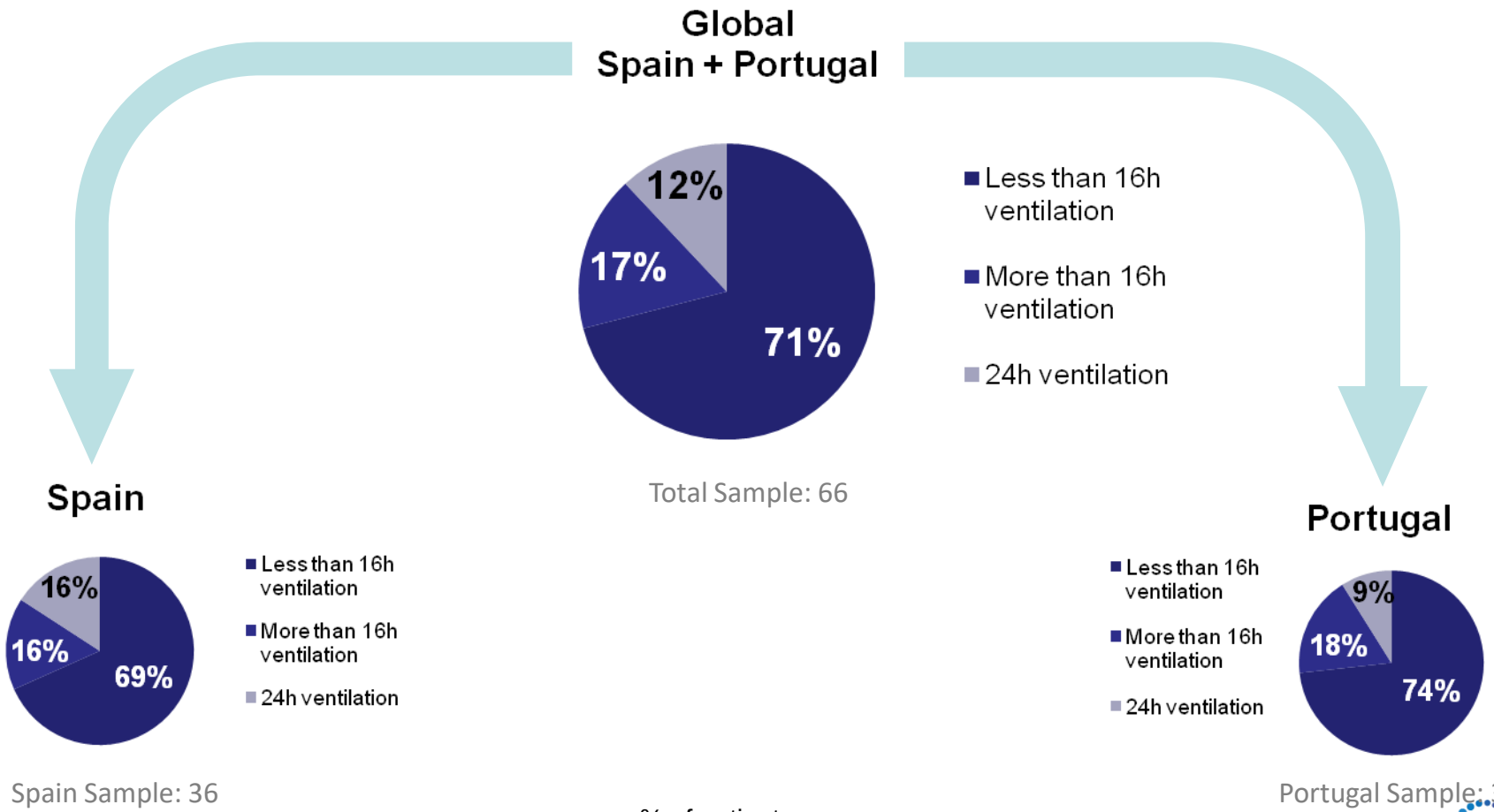
7 out of 10 patients treated with NIV receive less than 16h ventilation.

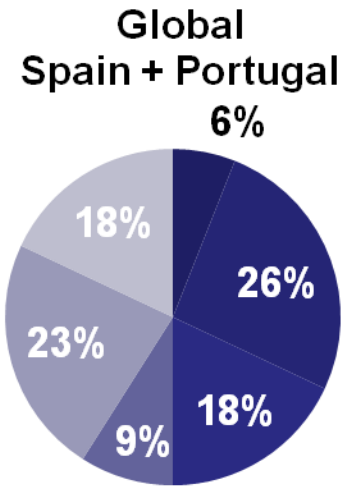
3.2.2. What is the ventilation profile of these home NIV patients?



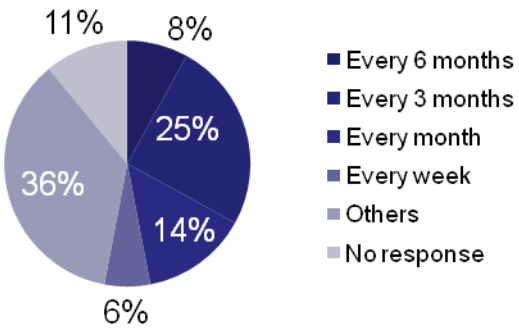
©ResMed 2014 I

There isn't a specific pattern for re-evaluations, there is a well balanced time period distribution.

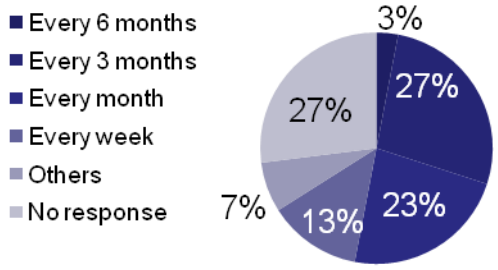
4.5. After implementing a long-term NIV, when do you re-evaluate the patient?



Total Sample: 66



Spain Sample: 36



Portugal Sample: 30

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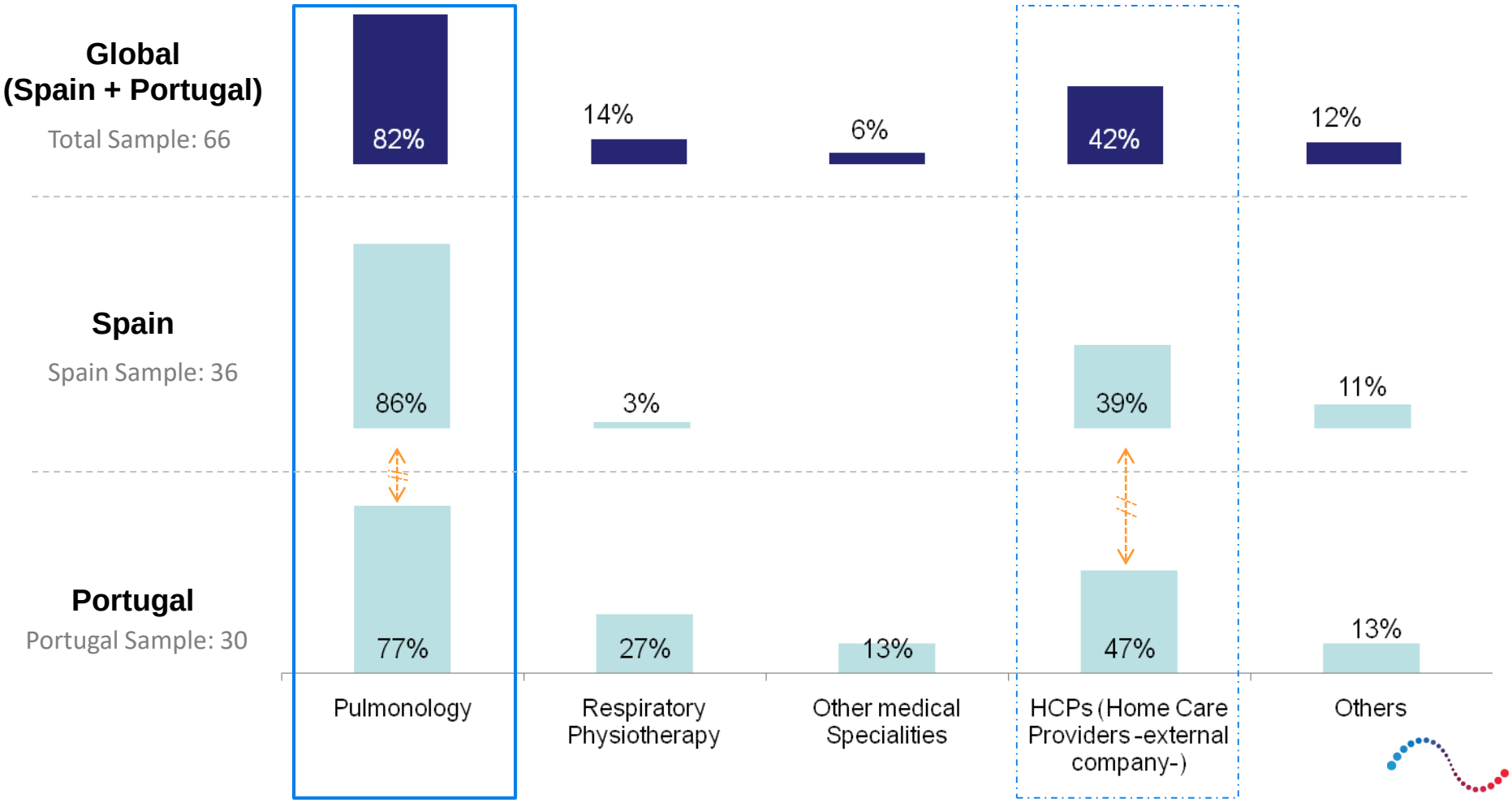
Mainly pulmonologists are the ones managing home NIV. HCPs also play an important role but to a lesser extent.

2.7 Once the patient leaves the hospital and starts NIV at home, describe the control and management of these patients at home.



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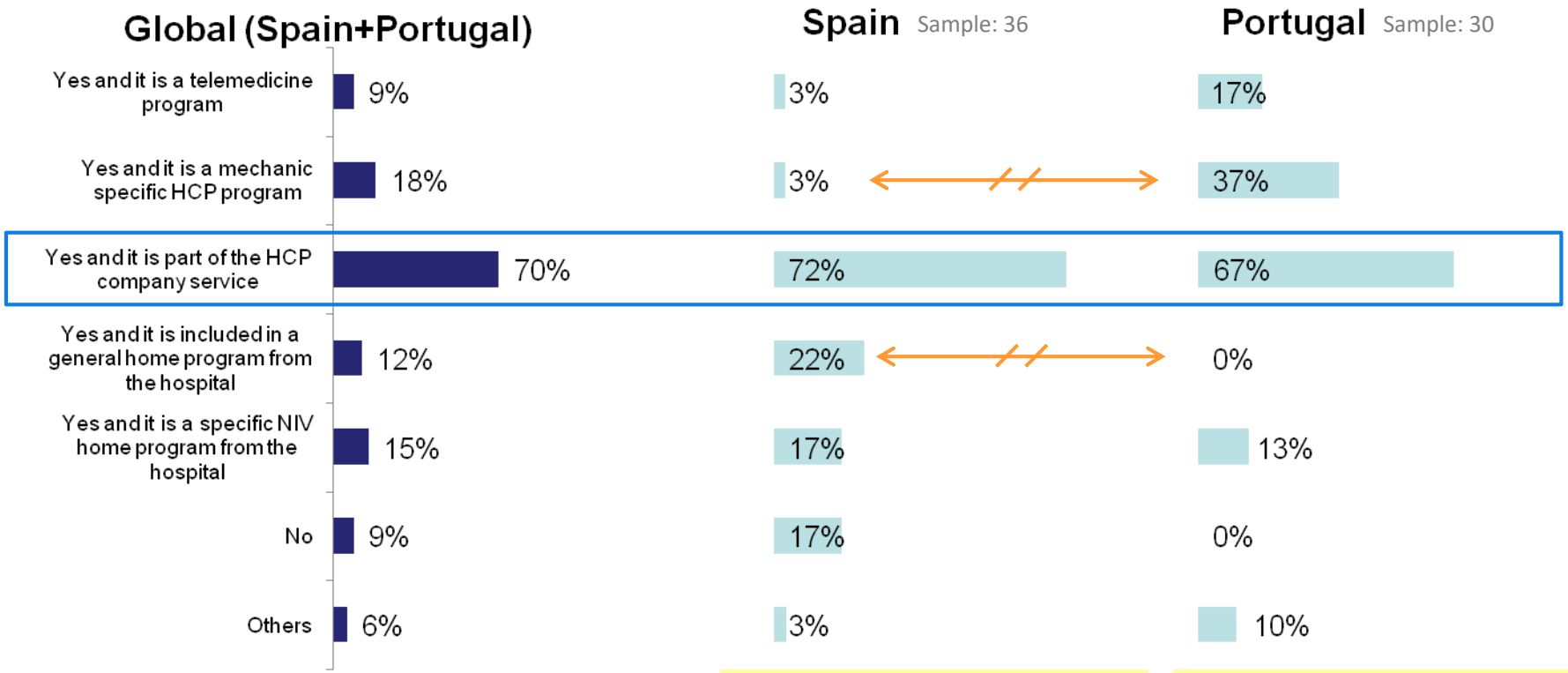
Home care NIV monitoring is perceived to be part of the service provided by HCPs.

2.9 Do your patients receive home care attention regarding their NIV treatment?



- It's not telemedicine but consultations are made by phone

- Using GPs support
- Specific program dealing with severe Cardio-Respiratory Insufficiency patients depending on NIV
- Always in the scope of home respiratory care services

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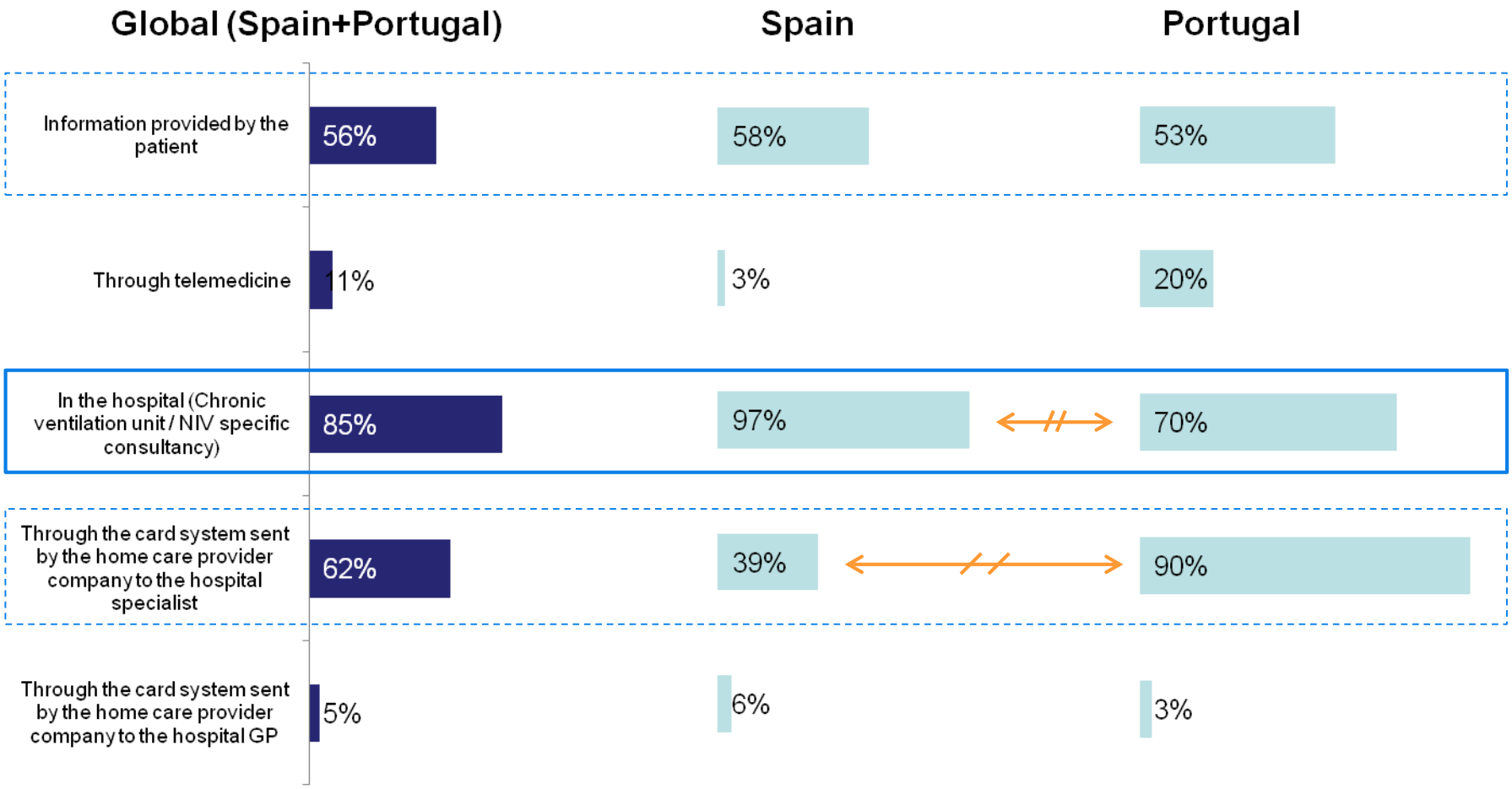
In Portugal, NIV is usually monitored through data download
In Spain it's usually monitored in the hospital

2.11 How is the home NIV monitored in your workplace?



Total Sample: 66 Spain Sample: 36 Portugal Sample: 30

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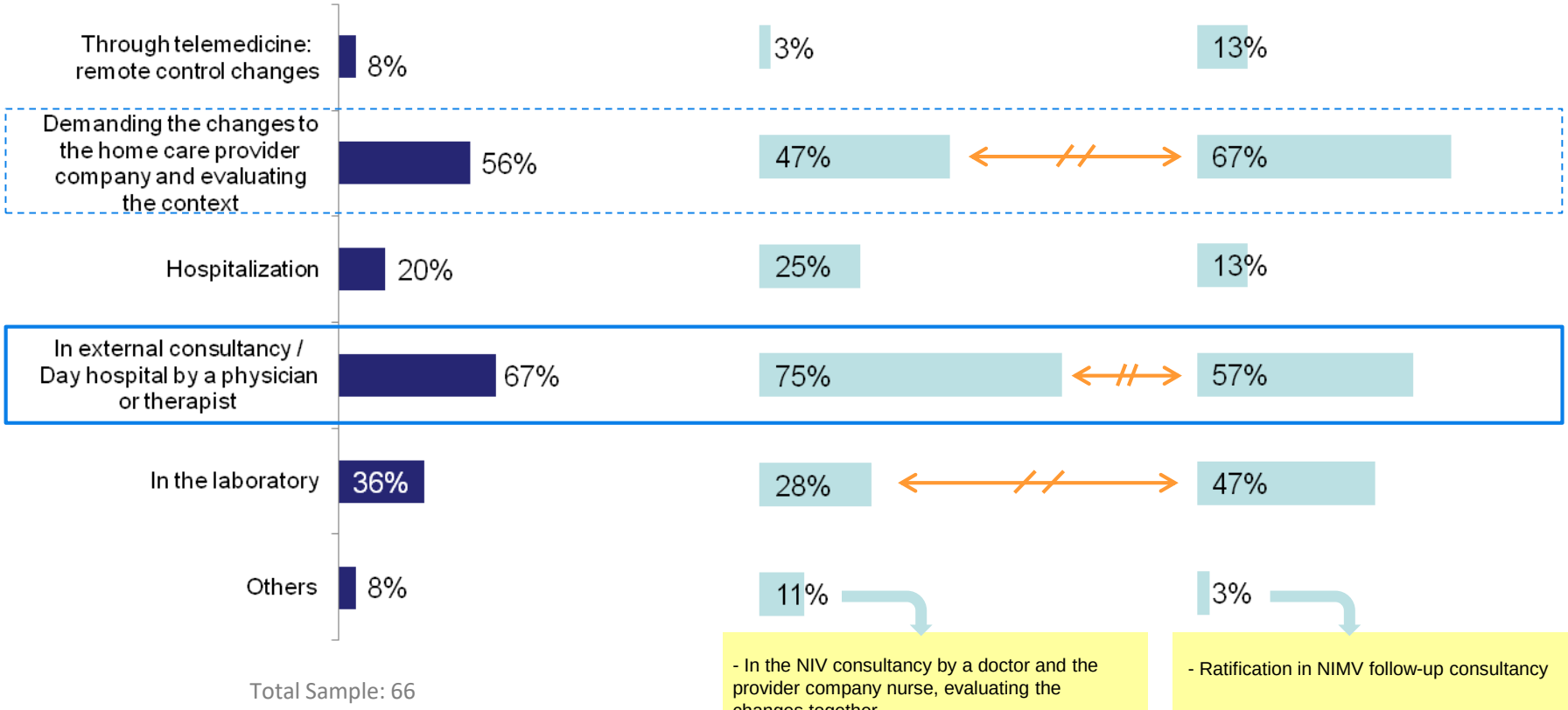
There are two main ways in which home NIV parameters are changed: Physician in the external consultancy/day hospital (Spain) requesting the changes to HCP(Portugal).

2.12 When parameters have to change, how are these changes performed?



- In the NIV consultancy by a doctor and the provider company nurse, evaluating the changes together.
- Outpatient entry (sleep room).
- Hospitalisation for very particular cases.

- Ratification in NIMV follow-up consultancy

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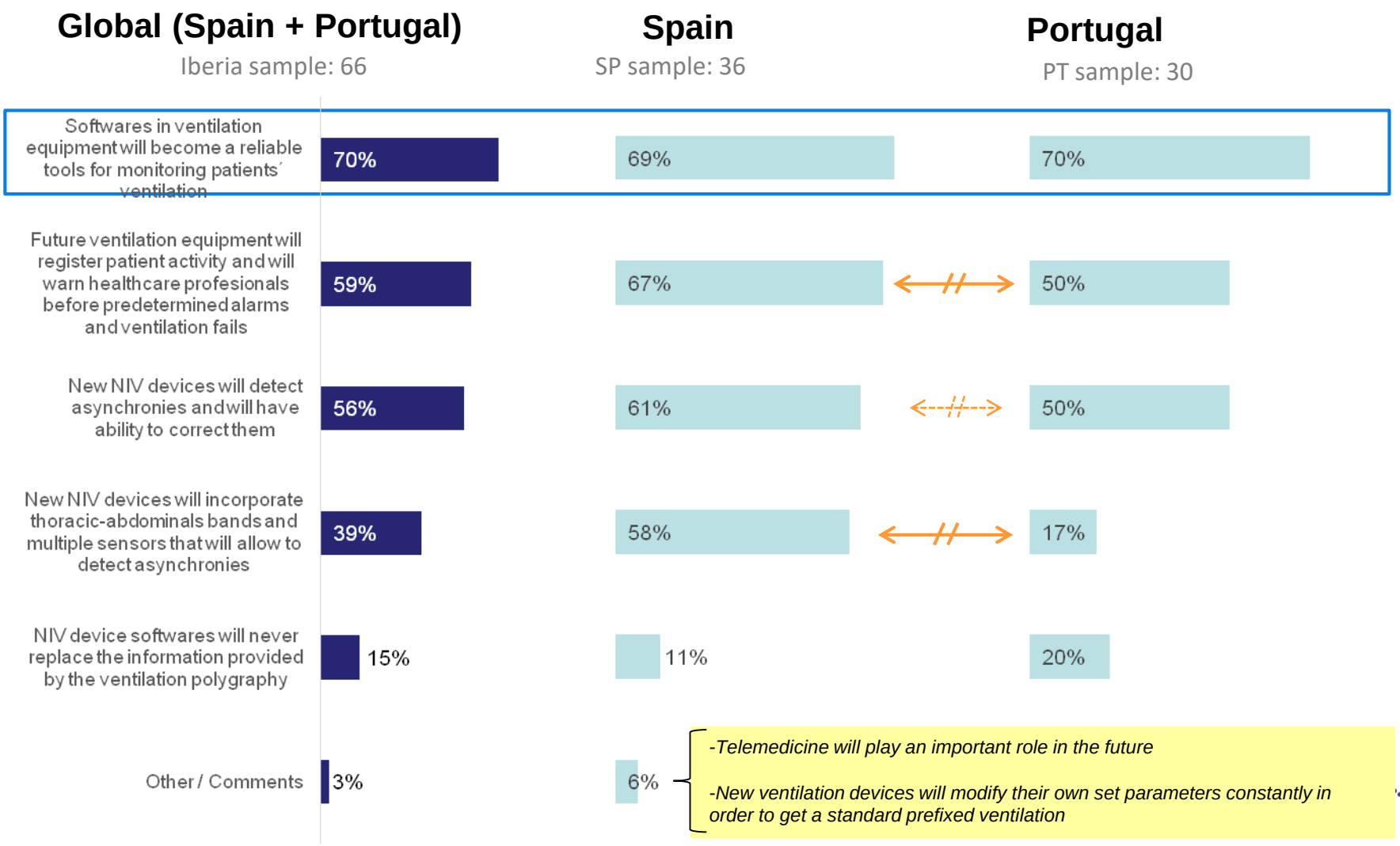
Strong understanding that equipment software improvements will lead to reliable tools, enabling patient monitoring and will detect and correct asynchronies

5.5. In relation to monitoring



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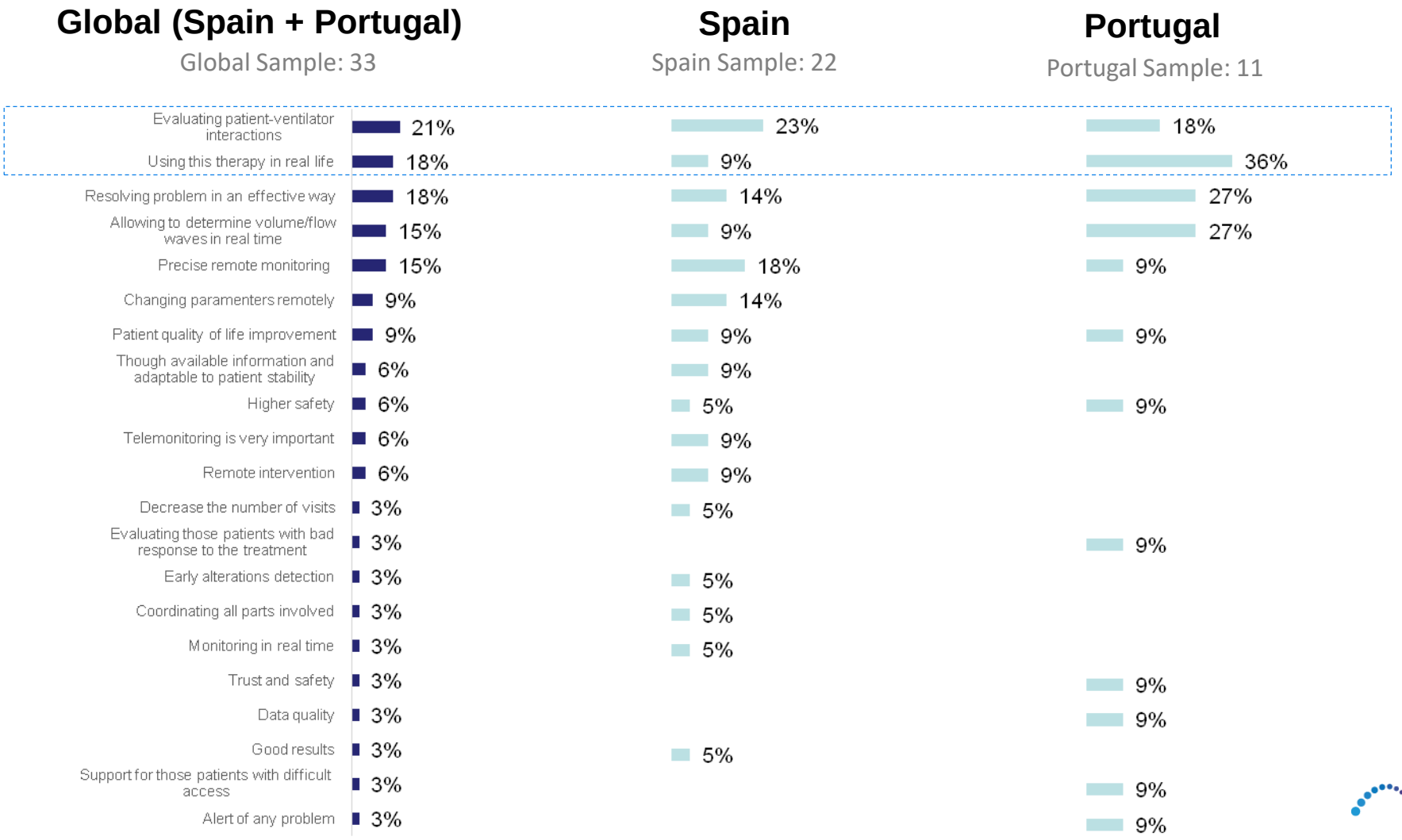
Telemonitoring can improve the therapy results, by “evaluating patient-ventilator interactions” and “using NIV telemonitoring in real life”

5.6.4 How can telemonitoring improve the therapy results?



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iCARE
iberia respiratory care program

ResMed

1.La TM no parece ser un tema prioritario para los profesionales prescriptores

2. Las empresas de servicios y TR están tomando un papel clínico fundamental en el seguimiento de pacientes con VMD

TASK FORCE REPORT
ERS STATEMENT

Tele-monitoring of ventilator-dependent patients: a European Respiratory Society Statement

Nicolino Ambrosino[1], Michele Vitacca[2], Michael Dreher[3], Valentina Isetta[4,5], Josep M. Montserrat[6,5], Thomy Tonia[7], Giuseppe Turchetti[8], Joao Carlos Winck[9], Felip Burgos[10], Michael Kampelmacher[11] and Guido Vagheggini[1] on behalf of the ERS Tele-Monitoring of Ventilator-Dependent Patients Task Force

Ambrosino N, *et al.* Eur Respir J 2016; 48: 648-663

TASK FORCE REPORT
ERS STATEMENT

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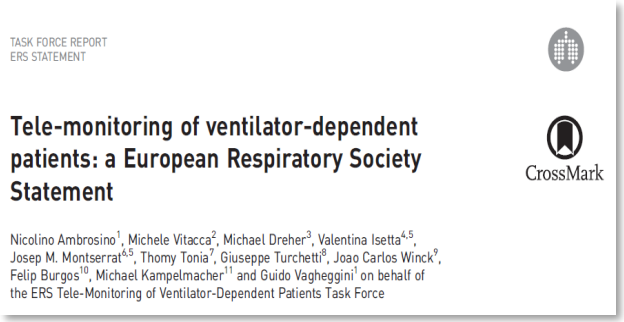
BOX 1 Terminology definitions

Tele-medicine	Distribution of health services in conditions where distance is a critical factor, by health care providers that use information and communication technologies to exchange information useful for diagnosis where doctor is able to perform diagnosis at distance.
Tele-communications	Use of cable connections, the radio, optical means or other electromagnetic channels to transmit or receive signals such as voice, data or video communications.
Telematics	Use of telecommunications to permit computers to transfer programmes and data.
Tele-consultation	Second opinion on demand between patient/family and staff or among health operators; opinions, advice provided at distance between two or more parties separated geographically.
Tele-monitoring	Digital/broadband/satellite/wireless or Bluetooth transmission of physiologic and other non-invasive data (*i.e.* biological storage data transfer).
Decision support systems	According to a sentinel value, an alert starts for health personnel who call patient.
Remote diagnosis	Identifying a disease by the assessment of the data transmitted to the receiving party through instrumentation monitoring a patient away.
Tele-therapy	Direct prescription.
Tele-evaluation	On-demand data transfer to use as biological outcome measures.
Telecare	Network of health and social services in a specific area; in case of emergency, patient calls medical personnel, emergency call service or members of family.
Tele-rehabilitation	Allowed to receive homecare and guidance on the process of rehabilitation through connections for point-to-point video conferencing between a central control unit and a patient at home.
Tele-coaching	Direct reinforcement or recorded messages/communications to improve adherence.
Tele-conference, audio	Electronic two-way voice communication between two or more people located in different places, which make use of transmission systems voice, video and/or data.
Emergency calls	A service that gives the ability to initiate a call for help to an operation centre, usually active 24 h a day throughout the year.
Tele-hospice	The use of tele-medicine technologies to provide palliative services to patients with severe chronic disease or living with and dying from advanced illness.

TMTT, escenarios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- Enfermedades neuromusculares
- EPOC y VMD
- Retirada de VM
- SAOS (CPAP)
- Fisioterapia respiratoria (TT)
- Curas paliativas (TMTT)

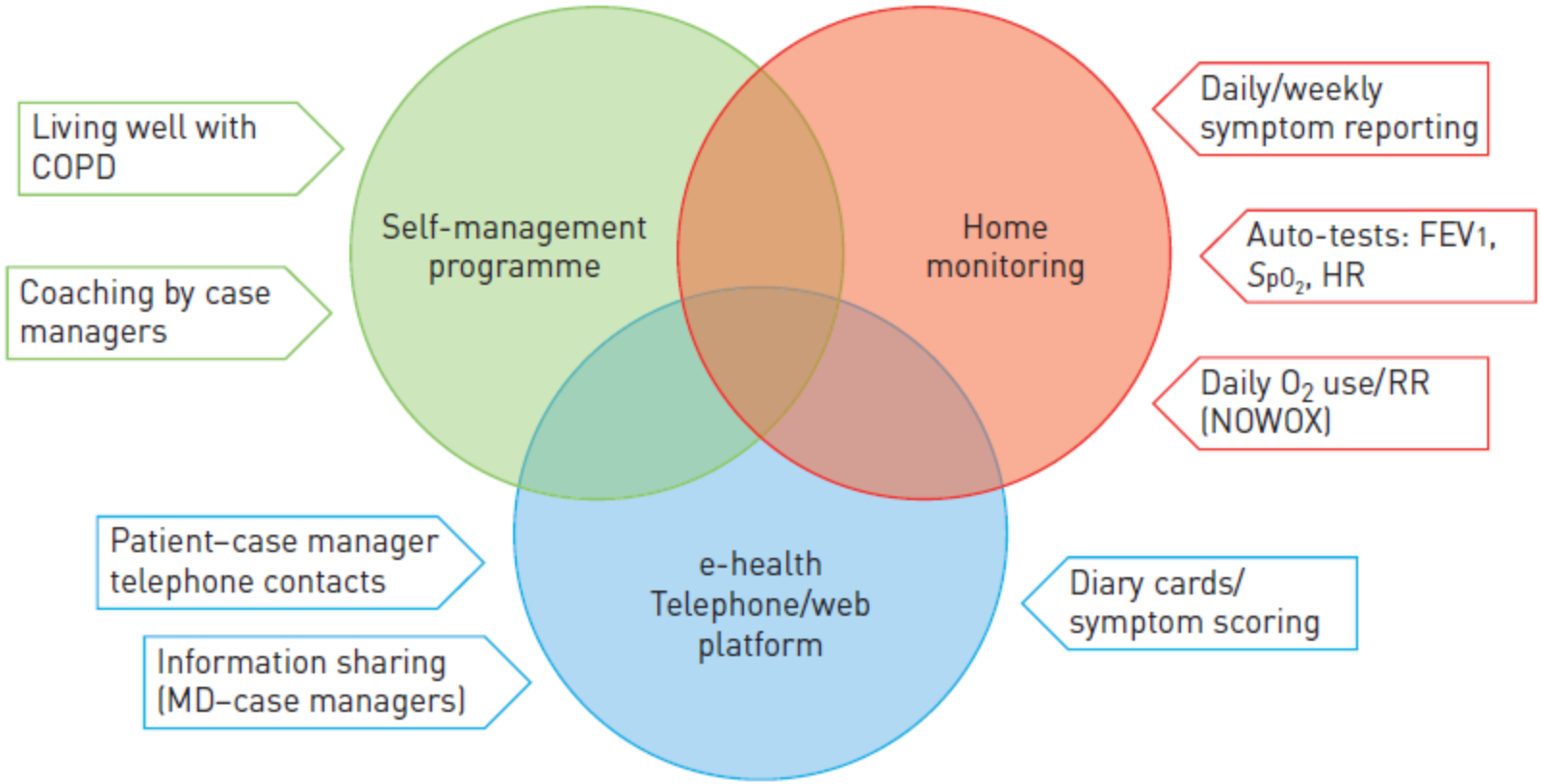
Ambrosino N, *et al.* Eur Respir J 2016; 48: 648-663

ORIGINAL ARTICLE
COPD

COMET: a multicomponent home-based disease-management programme *versus* routine care in severe COPD

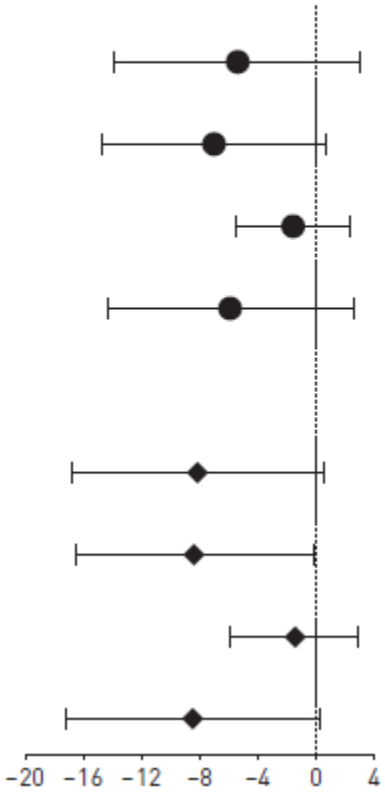
Romain Kessler[1], Pere Casan-Clara[2], Dieter Koehler[3], Silvia Tognella[4], Jose Luis Viejo[5], Roberto W. Dal Negro[6], Salvador Díaz-Lobato[7], Karina Reissig[3], José Miguel Rodríguez González-Moro[8], Gilles Devouassoux[9], Jean-Michel Chavaillon[10], Pierre Botrus[11], Jean-Michel Arnal[12], Julio Ancochea[13], Anne Bergeron-Lafaurie[14], Carlos De Abajo[15], Winfried J. Randerath[16], Andreas Bastian[17], Christian G. Cornelissen[18], Georg Nilius[19], Joëlle B. Texereau[20,21] and Jean Bourbeau[22]

Kessler, *el al.* Eur Respir J 2018; 51: 1701612



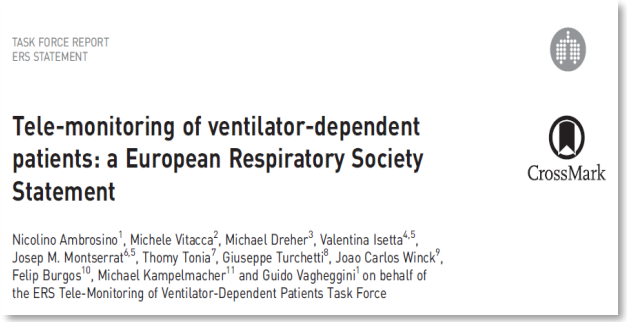
Kessler, *el al.* Eur Respir J 2018; 51: 1701612

	Disease management	Usual management	p-value#	Difference in adjusted means (95% CI)¶	p-value+
Intention-to-treat hospitalisation days	n=157	n=162			
Primary end-point (acute care wards/nursing facilities)	17.4±35.4 0 (0–203)	22.6±41.8 5 (0–259)	0.161	−5.3 (−13.7;3.1)	0.212
All-cause, acute care wards	14.1±28.7 0 (0–203)	20.9±40.5 5 (0–259)	0.136	−6.9 (−14.5;0.7)	0.074
Acute exacerbation of COPD (acute care/nursing facilities)	7.8±16.4 0 (0–104)	9.1±20.8 0 (0–145)	0.885	−1.5 (−5.5;2.5)	0.458
LTOT/HMV patients (n=243)	20.1±38.7 2 (0–203)	26.0±44.8 9 (0–259)	0.083	−5.7 (−14.2;2.7)§	0.183
Per-protocol hospitalisation days	n=134	n=154			
Primary end-point (acute care wards/nursing facilities)	15.1±31.6 0 (0–203)	23.0±42.6 5 (0–259)	0.133	−8.0 (−16.6;0.6)	0.070
All-cause, acute care wards	13.1±28.2 0 (0–203)	21.1±41.3 5 (0–259)	0.122	−8.3 (−16.4;0.1)	**0.047**
Acute exacerbation of COPD (acute care/nursing facilities)	8.3±17.5 0 (0–104)	9.1±21.2 0 (0–145)	0.991	−1.4 (−5.7;3.0)	0.531
LTOT/HMV patients (n=215)	17.1±34.5 2 (0–203)	26.7±46.0 9 (0–259)	**0.046**	−8.3 (−17.1;0.4)§	0.061



Kessler, *el al.* Eur Respir J 2018; 51: 1701612

TMTT, características del sistema


TASK FORCE REPORT
ERS STATEMENT

Tele-monitoring of ventilator-dependent patients: a European Respiratory Society Statement

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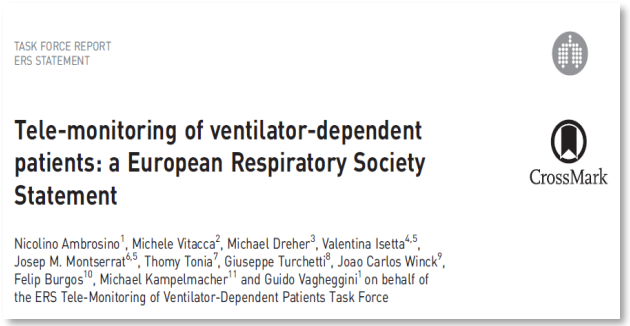
- Sincronicidad en el tiempo: si, no
- Configuración: privada, internet, RS
- Conectividad: Wired/wireless
- Interoperatividad

Ambrosino N, *et al.* Eur Respir J 2016; 48: 648-663

TM, ejemplos



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- Llamada telefónica
- Videoconferencia
- Transmisión de datos clinicos/respirador
- Plataforma wew, app
- Mixtos

Ambrosino N, *et al.* Eur Respir J 2016; 48: 648-663

TT, ejemplos

- Llamada/videoconferencia
- Plataforma wew
- Telemodificación de parámetros ventilatorios, programa específico (modem)
- Automático

ORIGINAL ARTICLE

Effect of Telemedicine Education and Telemonitoring on Continuous Positive Airway Pressure Adherence

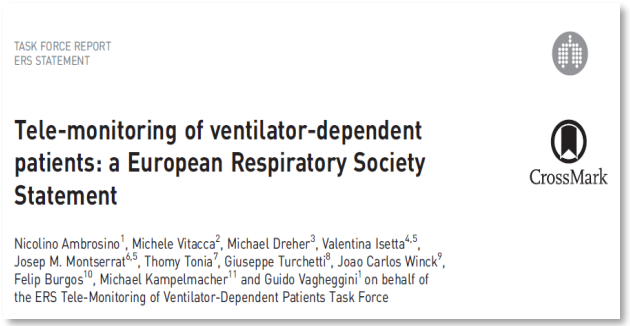
The Tele-OSA Randomized Trial

Dennis Hwang[1], Jeremiah W. Chang[1], Adam V. Benjafield[2], Maureen E. Crocker[2], Colleen Kelly[3], Kendra A. Becker[1], Joseph B. Kim[1], Rosa R. Woodrum[1], Joanne Liang[1], and Stephen F. Derose[1,4]

[1]Division of Sleep Medicine, Southern California Permanente Medical Group, [2]ResMed Science Center, ResMed Corporation, and [3]Kelly Statistical Consulting, and [4]Department of Research and Evaluation, Southern California Permanente Medical Group, Fontana, California

Hwang D, *et al.* Am J Respir Crit Care Med 2018; 197: 117-126

TMTT, legalidad



TASK FORCE REPORT
ERS STATEMENT

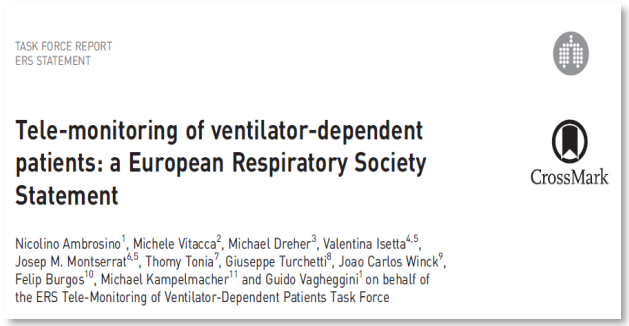
Tele-monitoring of ventilator-dependent patients: a European Respiratory Society Statement

Nicolino Ambrosino[1], Michele Vitacca[2], Michael Dreher[3], Valentina Isetta[4,5], Josep M. Montserrat[4,5], Thomy Tonia[7], Giuseppe Turchetti[8], Joao Carlos Winck[9], Felip Burgos[10], Michael Kampelmacher[11] and Guido Vagheggini[1] on behalf of the ERS Tele-Monitoring of Ventilator-Dependent Patients Task Force

- Confidencialidad de datos
- Responsabilidades clínicas
- Papel de la empresa suministradora
- Teletratamiento

Ambrosino N, *et al.* Eur Respir J 2016; 48: 648-663

TMTT, limitaciones y oportunidades


TASK FORCE REPORT
ERS STATEMENT

Tele-monitoring of ventilator-dependent patients: a European Respiratory Society Statement

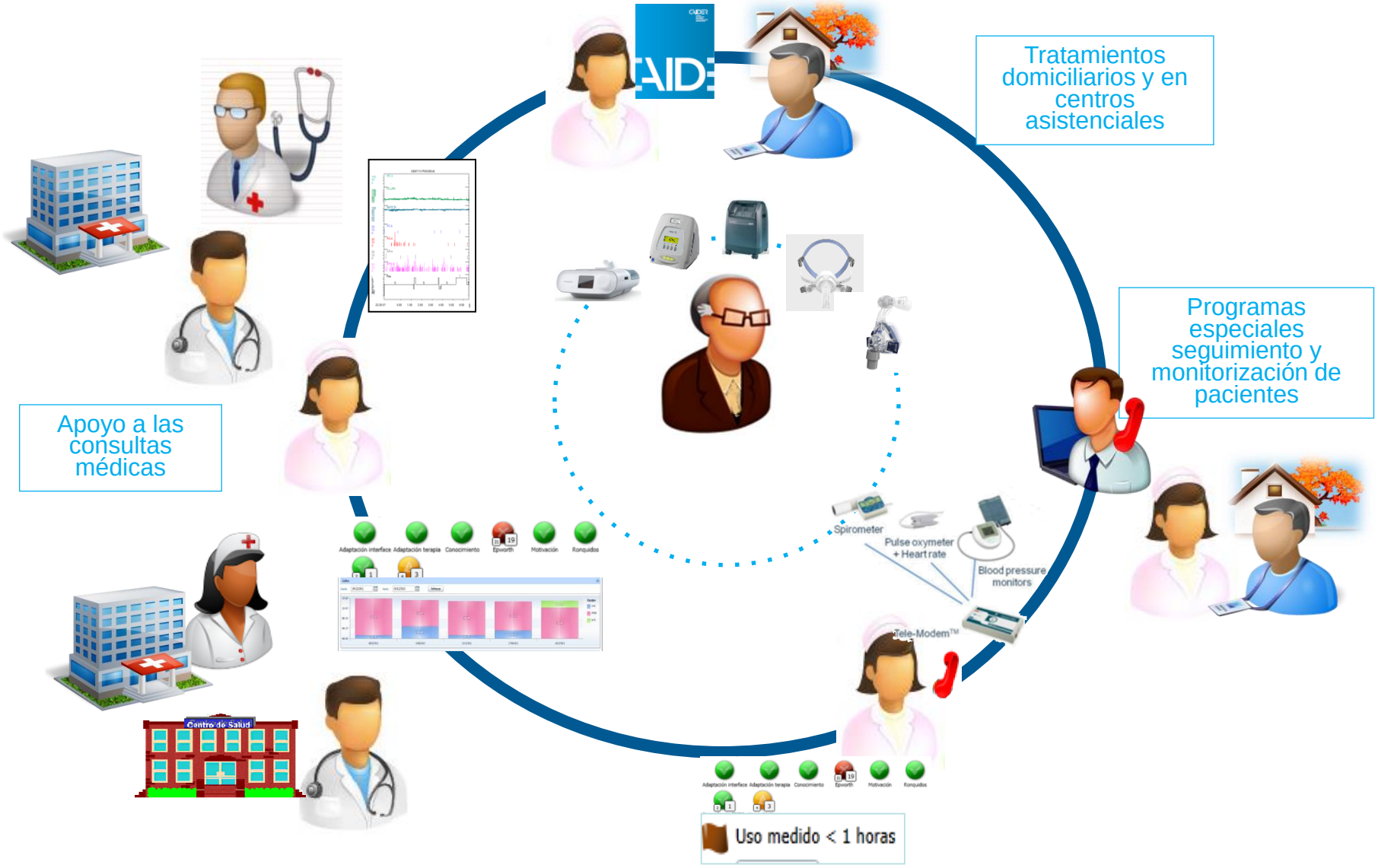
Nicolino Ambrosino[1], Michele Vitacca[2], Michael Dreher[3], Valentina Isetta[4,5], Josep M. Montserrat[4,5], Thomy Tonia[7], Giuseppe Turchetti[8], Joao Carlos Winck[9], Felip Burgos[10], Michael Kampelmacher[11] and Guido Vagheggini[1] on behalf of the ERS Tele-Monitoring of Ventilator-Dependent Patients Task Force

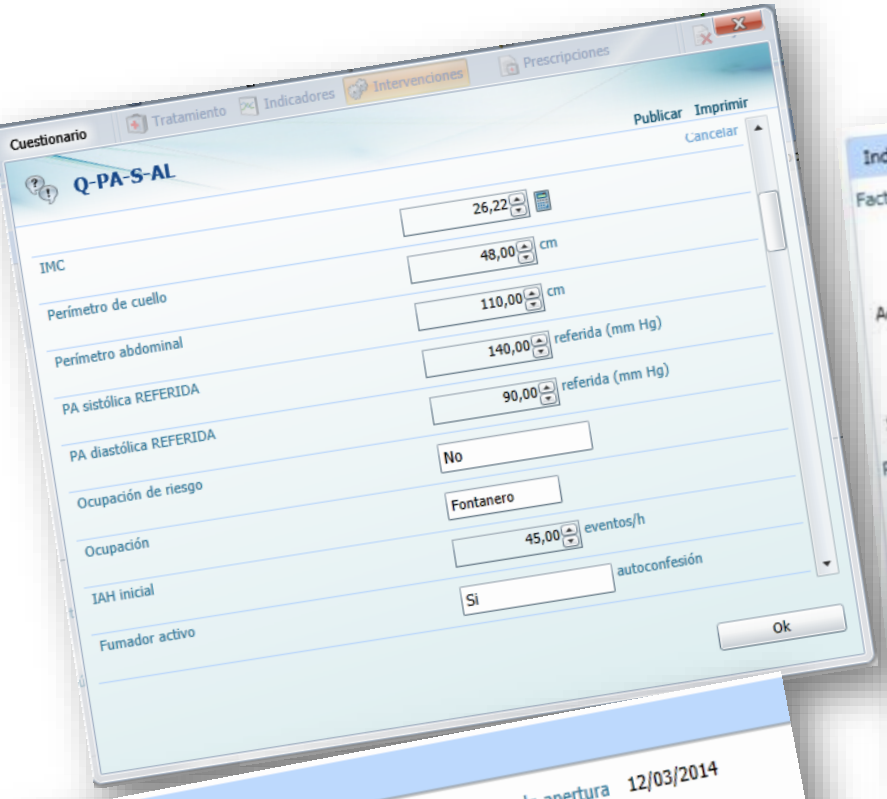
- Coste/beneficio?
- Interoperatividad
- Disponibilidad y respuesta inmediata
- Relación de los diversos profesionales y recursos asistenciales
- Adaptación domiciliaria a VMD/soporte vital

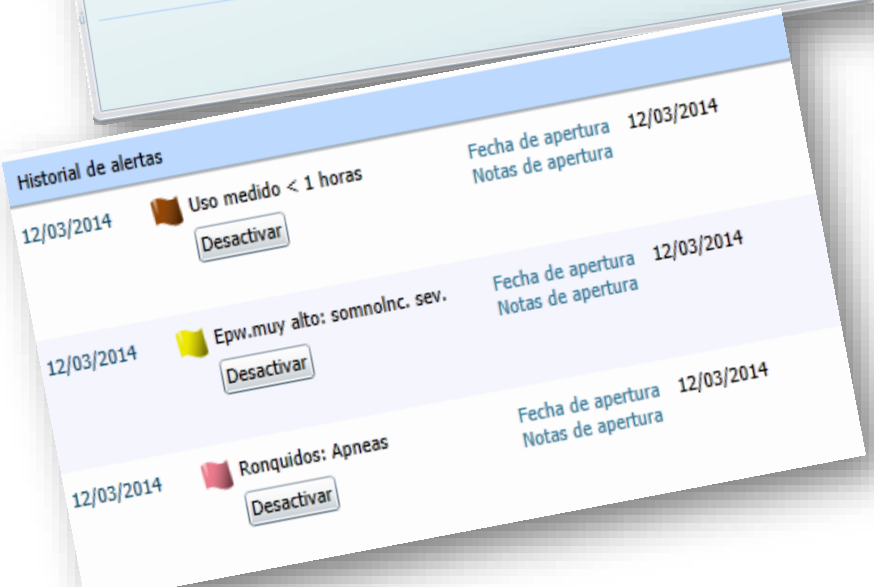
Ambrosino N, *et al.* Eur Respir J 2016; 48: 648-663

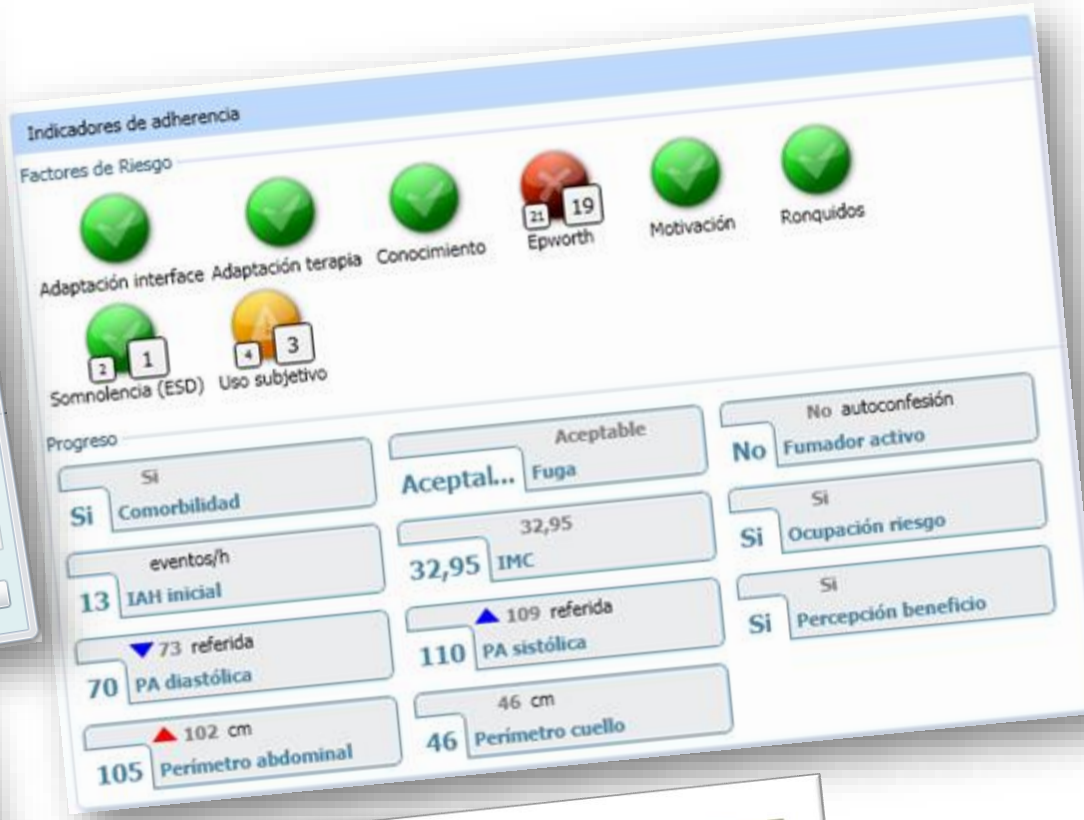
TMTT y la VMD hoy

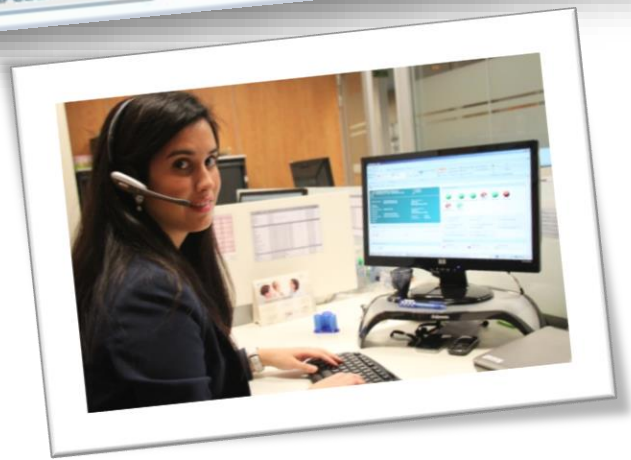
- TM universal
- TM en soporte vital
- TT en pacientes seleccionados
- Papel protagonista de las empresas
- Necesidad de mejorar la coordinación asistencial
- Asignación de funciones


Tratamientos domiciliarios y en centros asistenciales
Programas especiales seguimiento y monitorización de pacientes
Apoyo a las consultas médicas
Spirometer
Pulse oxymeter + Heart rate
Blood pressure monitors
Tele-Modem™
Centro de Salud
Adaptación interface
Adaptación terapia
Conocimiento
Epworth
Motivación
Ronquidos
Uso medido < 1 horas


Cuestionario
Tratamiento
Indicadores
Intervenciones
Prescripciones
Publicar
Imprimir
Cancelar
Q-PA-S-AL
IMC
26,22
Perímetro de cuello
48,00 cm
Perímetro abdominal
110,00 cm
PA sistólica REFERIDA
140,00 referida (mm Hg)
PA diastólica REFERIDA
90,00 referida (mm Hg)
Ocupación de riesgo
No
Ocupación
Fontanero
IAH inicial
45,00 eventos/h
Fumador activo
Si autoconfesión
Ok


Historial de alertas
12/03/2014
Uso medido < 1 horas
Desactivar
Fecha de apertura 12/03/2014
Notas de apertura
12/03/2014
Epw.muy alto: somnolnc. sev.
Desactivar
Fecha de apertura 12/03/2014
Notas de apertura
12/03/2014
Ronquidos: Apneas
Desactivar
Fecha de apertura 12/03/2014
Notas de apertura


Indicadores de adherencia
Factores de Riesgo
Adaptación interface
Adaptación terapia
Conocimiento
Epworth 19
Motivación
Ronquidos
Somnolencia (ESD) 1
Uso subjetivo 3
Progreso
Si Comorbilidad
Aceptable
Aceptal... Fuga
No autoconfesión
No Fumador activo
eventos/h
13 IAH inicial
32,95
32,95 IMC
Si
Si Ocupación riesgo
73 referida
70 PA diastólica
109 referida
110 PA sistólica
Si
Si Percepción beneficio
102 cm
105 Perímetro abdominal
46 cm
46 Perímetro cuello



Centro para la Atención Integral De Enfermedades Respiratorias (CAIDER), objetivos

1-Atención completa e integral del paciente con VMD

2-Optimizar recursos (seleccionar atención a domicilio)

3-Integración real de profesionales

CAIDER, actividades

- Atención integral y compartida (agenda común)
  - Profesional sanitaria (enfermería y médico)
  - Técnica

- Otras funciones
  - Atención domiciliaria (apoyo al alta)
  - Call center
  - Telemonitor/Telemedicina center
  - Coordinación atención domiciliaria
  - Educación grupal
  - Docencia

CAIDER, personal

- Técnico (1), Linde

- Personal sanitario (St Pau-Linde)
  - 2 enfermeras fijas
  - 1 enfermera (invierno; Linde)
  - 1 neumologo (invierno; Linde)

Equipo VM: 3 neumologos y una FT
con permanente disponibilidad presencial
y telefónica. Apoyo del MG fuera de horario

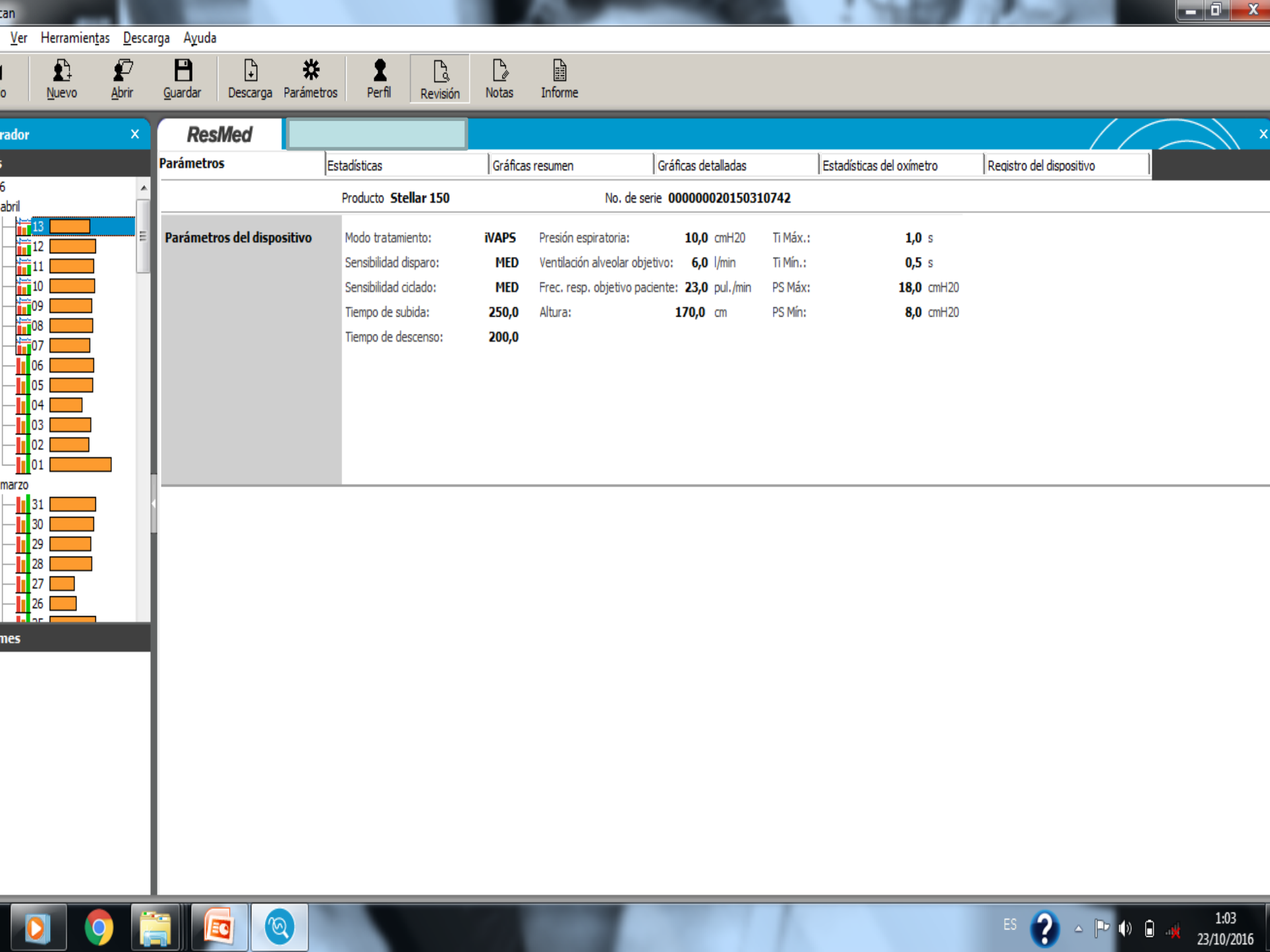
52
60

Linde
Linde, en buenas manos.
Pasión por la salud, siempre a tu lado.
Linde: Living healthcare
CAIDER
CAIDER

Linde
RESIDUOS PARA RETIRA
GRACIAS

CAIDER
ESPAI A
CAIDER
ESPAI A

formació en
tabaquisme
2016


Ver Herramientas Descarga Ayuda
Nuevo
Abrir
Guardar
Descarga
Parámetros
Perfil
Revisión
Notas
Informe
ResMed
Parámetros
Estadísticas
Gráficas resumen
Gráficas detalladas
Estadísticas del oxímetro
Registro del dispositivo
Producto Stellar 150
No. de serie 000000020150310742
Parámetros del dispositivo
Modo tratamiento: iVAPS
Sensibilidad disparo: MED
Sensibilidad ciclado: MED
Tiempo de subida: 250,0
Tiempo de descenso: 200,0
Presión espiratoria: 10,0 cmH20
Ventilación alveolar objetivo: 6,0 l/min
Frec. resp. objetivo paciente: 23,0 pul./min
Altura: 170,0 cm
Ti Máx.: 1,0 s
Ti Mín.: 0,5 s
PS Máx: 18,0 cmH20
PS Mín: 8,0 cmH20
abril
marzo
1:03
23/10/2016

ResScan

Archivo Ver Herramientas Descarga Ayuda

Inicio | Nuevo | Abrir | Guardar | Descarga | Parámetros | Perfil | Revisión | Notas | Informe

Explorador

Datos

- 2016
  - abril
    - 13
    - 12
    - 11
    - 10
    - 09
    - 08
    - 07
    - 06
    - 05
    - 04
    - 03
    - 02
    - 01
  - marzo
    - 31
    - 30
    - 29
    - 28
    - 27
    - 26

Informes

ResMed

Parámetros | **Estadísticas** | Gráficas resumen | Gráficas detalladas | Estadísticas del oxímetro | Registro del dispositivo

Producto **Stellar 150** No. de serie **000000020150310742**

Rango de visualiz. **1 día** o bien **13/04/2016** a **13/04/2016**

	Mediana del uso diario: (hs/día de días de uso)	**5:59**	Días no usado:	**0**	días
			Total de días:	**1**	días
	Uso diario promedio: (total hs/total días)	**5:59**	% días de uso >= 4 hs	**100**	%

Índices respiratorios episodios/hora	Índice de apnea:	**0,0**	Índice de hipopnea:	**0,1**	AHI:	**0,1**
Frecuencia respiratoria respiraciones/min	Percentil 5:	**10**	Mediana:	**21**	Percentil 95:	**30**
	% de inspiraciones espontáneas:	**75**				
	% de espiraciones espontáneas:	**49**				
Ventilación minuto l/min	Percentil 5:	**5,4**	Mediana:	**9,1**	Percentil 95:	**12,3**
Fuga l/min	Percentil 5:	**3,0**	Mediana:	**12,0**	Percentil 95:	**72,0**
Volumen corriente ml	Percentil 5:	**290**	Mediana:	**440**	Percentil 95:	**620**
Relación I:E %	Percentil 5:	**---:---**	Mediana:	**1:2,38**	Percentil 95:	**1:1,54**
Tiempo inspiratorio	Percentil 5:	**---**	Mediana:	**0,95**	Percentil 95:	**1,00**

ES 1:04 23/10/2016

ResScan

Archivo Ver Herramientas Descarga Ayuda

Inicio | Nuevo | Abrir | Guardar | Descarga | Parámetros | Perfil | Revisión | Notas | Informe

Explorador

Datos

- 2016
  - abril
    - 19
    - 18
    - 17
    - 13

Informes

ResMed **Revisión**

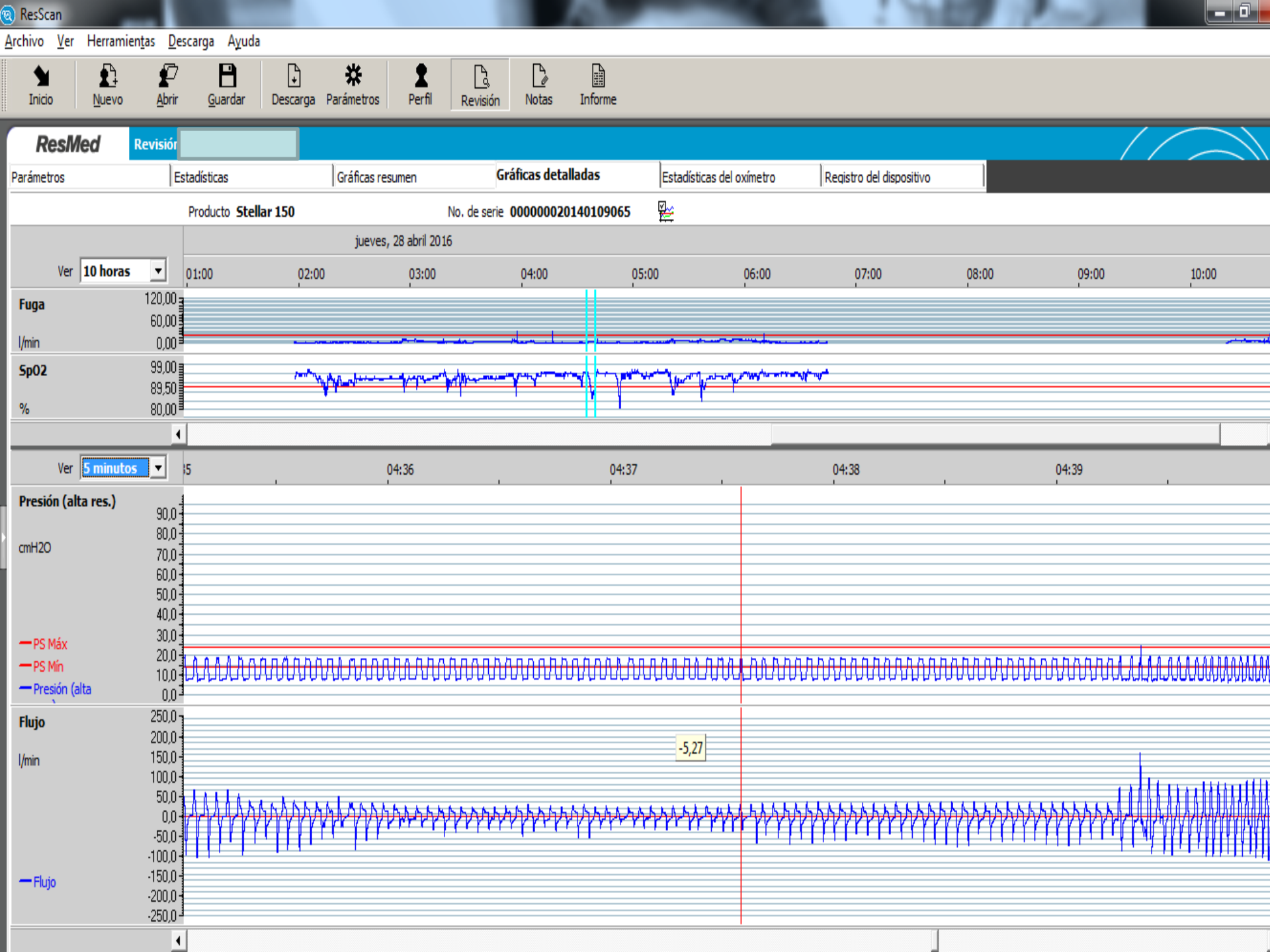
Parámetros | Estadísticas | Gráficas resumen | Gráficas detalladas | **Estadísticas del oxímetro** | Registro del dispositivo

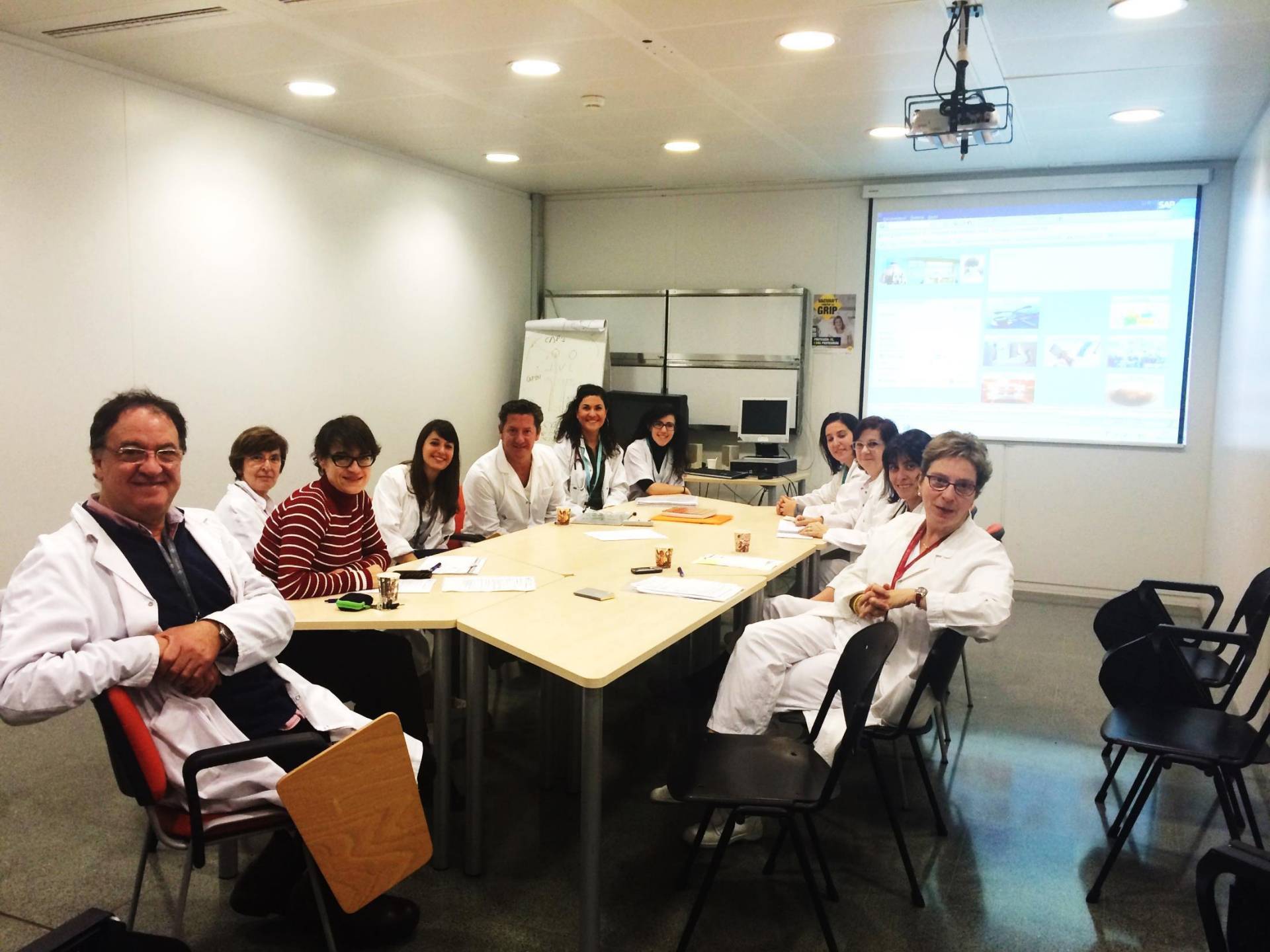
Producto **VPAP ST (S9)** No. de serie **22152046507**

martes, 19 abril 2016

IDO	IDO para la sesión:	9			
Frecuencia del pulso pul./min	Minimum:	54	Mediana:	67	Máximo/a: 214
SpO2 %	SpO2 era inferior a	**90**	% por	**00:11:17**	hh:mm:ss
	SpO2 era inferior a	**80**	% por	**00:00:19**	hh:mm:ss
	SpO2 era inferior a	**70**	% por	**00:00:00**	hh:mm:ss
	Minimum:	78	Mediana:	94	Máximo/a: 99

ES 1:10 23/10/2016


ResScan
Archivo Ver Herramientas Descarga Ayuda
Inicio Nuevo Abrir Guardar Descarga Parámetros Perfil Revisión Notas Informe
ResMed
Revisión
Parámetros
Estadísticas
Gráficas resumen
Gráficas detalladas
Estadísticas del oxímetro
Registro del dispositivo
Producto Stellar 150
No. de serie 00000020140109065
jueves, 28 abril 2016
Ver 10 horas
01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00
Fuga
120,00
60,00
l/min
0,00
SpO2
99,00
89,50
%
80,00
Ver 5 minutos
04:36 04:37 04:38 04:39
Presión (alta res.)
cmH2O
90,0 80,0 70,0 60,0 50,0 40,0 30,0 20,0 10,0 0,0
PS Máx
PS Mín
Presión (alta
Flujo
l/min
250,0 200,0 150,0 100,0 50,0 0,0 -50,0 -100,0 -150,0 -200,0 -250,0
-5,27
Flujo


GRIP

TMTT y CAIDER hoy

- TM
  - Llamada telefónica (demanda, control)
  - Asincrónica (volcado), universal
- TT
  - Indicación telefónica
  - Ajuste en domicilio (empresa)

TMTT: AirView, experiencia piloto

AirView Dashboard – Panel de cumplimiento

ResMed AirView™

Nuevo paciente | Descarga de tarjeta

Pacientes inalámbricos

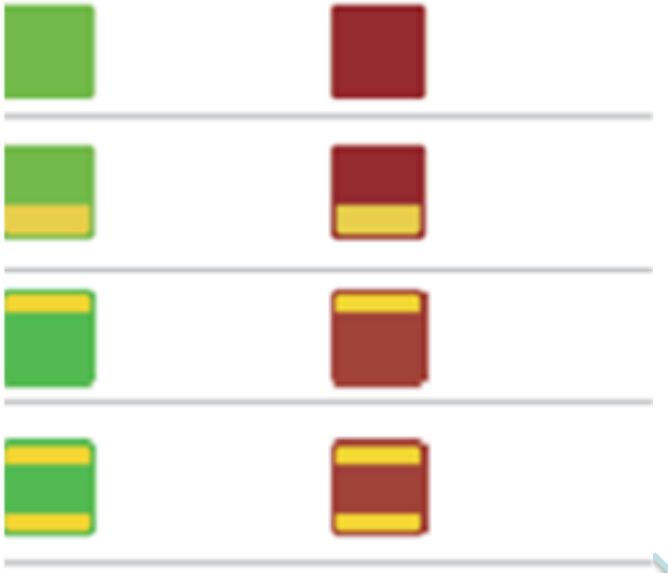
Buscar pacientes

Nombre	Día	Período actual		12/10	13/10	14/10	15/10	16/10	17/10	18/10	19/10	20/10	21/10
		Restantes	Uso promedio										
Stellar 100, Chad	32	25	3h 6m									M	M
Stellar 150, Sue	32	25	3h 6m									M	M
AirCurve10CSPacewave, Lisa	34	23	3h 50m									M	M
AirCurve10CSPacewave, Paul	34	23	3h 50m									M	M
AirSense10AutoSet, Cass SpO2	34	23	4h 24m									M	M
AirSense10AutoSet, Michael	34	23	3h 50m									M	M
AirSense10AutoSet, Simon	34	23	3h 50m									M	M
AirSense10AutoSetforHer, Caroline	34	23	2h 50m									M	M
AirSense10AutoSetforHer, Jane	34	23	4h 18m									M	M
AirSense10AutoSetforHer, Mary	34	23	4h 18m									M	M
LumisVPAP100S, Sebastian	34	23	6h 32m									M	M
LumisVPAP100ST, Milena	34	23	0h 0m									M	M
LumisVPAP100ST-A, Ines	34	23	0h 0m									M	M

Leyenda de iconos

Uso > 4h

Uso < 4h

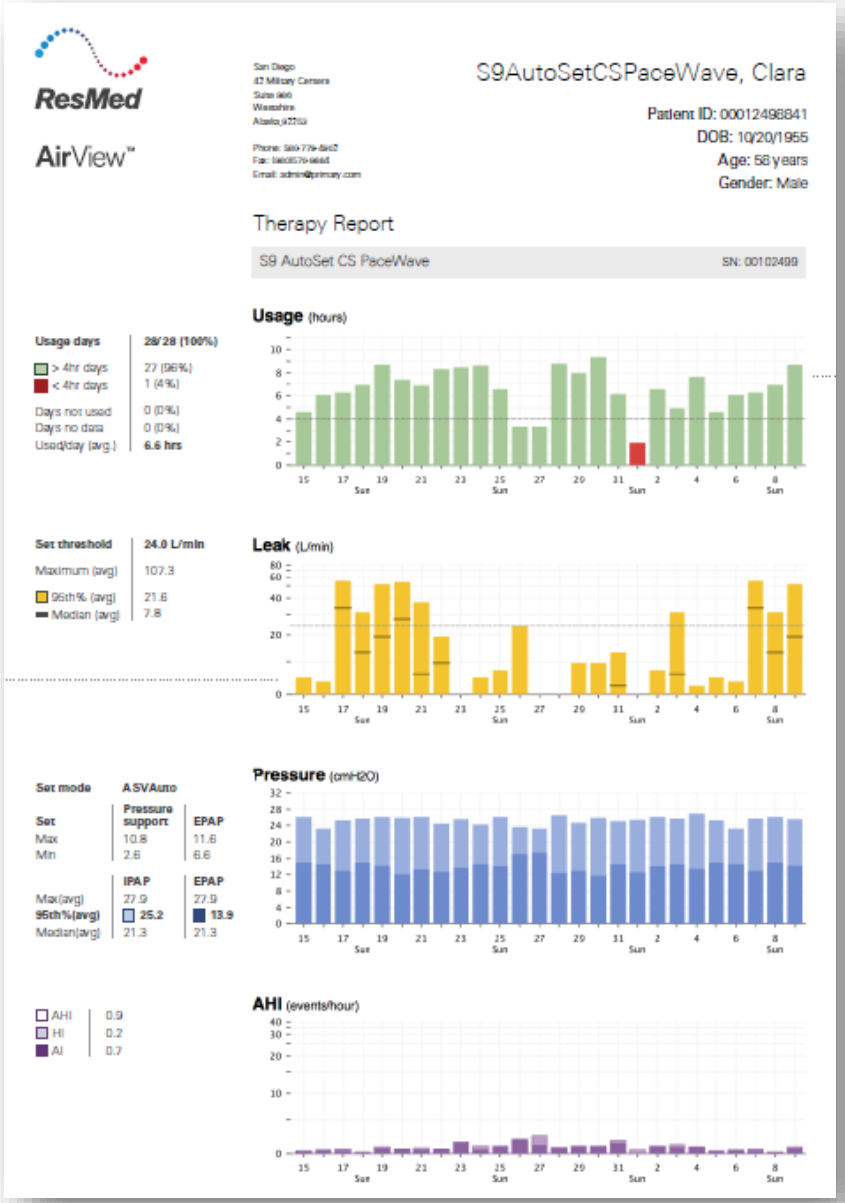


Fuga alta

IAH alto

Fuga e IAH altos

AirView – Informes estadísticos



ResMed

AirView™

San Diego
42 Military Careers
Suite 666
Wessshire
Alaska,92253

Phone: 555-779-5662
Fax: (555)570-9884
Email: admin@primary.com

S9AutoSetCSPaceWave, Clara

Patient ID: 00012498841
DOB: 10/20/1955
Age: 58 years
Gender: Male

Therapy Report

S9 AutoSet CS PaceWave — SN: 00102499

Usage (hours)

Usage days	28/28 (100%)
> 4hr days	27 (96%)
< 4hr days	1 (4%)
Days not used	0 (0%)
Days no data	0 (0%)
Used/day (avg.)	6.6 hrs

Leak (L/min)

Set threshold	24.0 L/min
Maximum (avg)	107.3
95th% (avg)	21.6
Median (avg)	7.8

Pressure (cmH2O)

Set mode	ASVAuto		
Set	Pressure support	EPAP
Max	10.8	11.6
Min	2.6	6.6
	IPAP	EPAP
Max(avg)	27.9	27.9
95th%(avg)	25.2	13.9
Median(avg)	21.3	21.3

AHI (events/hour)

AHI	0.9
HI	0.2
AI	0.7

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San Diego
42 Military Careers
Suite 666
Wessshire
Alaska,92253

Phone: 555-779-5662
Fax: (555)570-9884
Email: admin@primary.com

S9AutoSetCSPaceWave, Clara

Patient ID: 00012498841
DOB: 10/20/1955
Age: 58 years
Gender: Male

Compliance Report

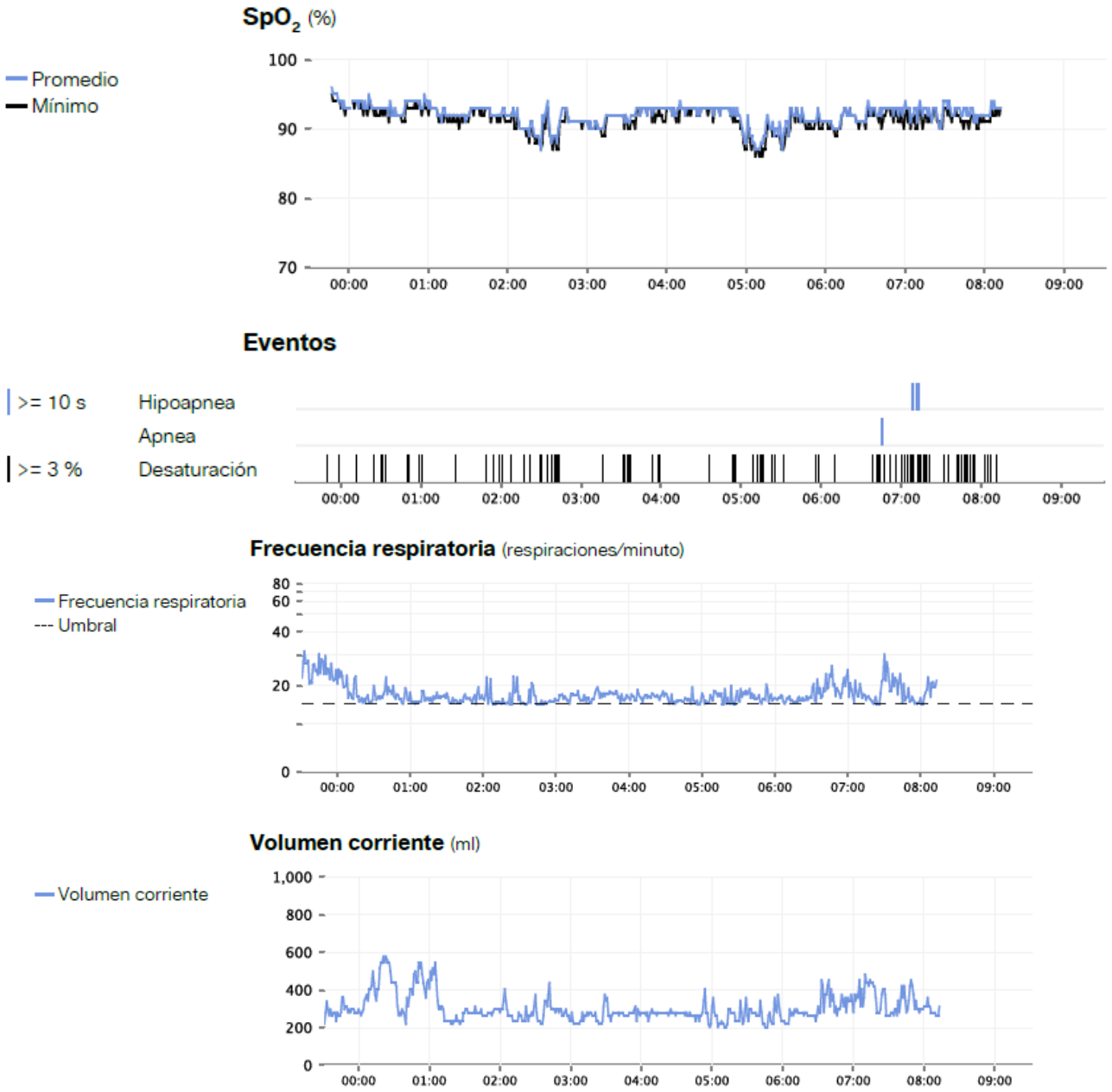
Usage	10/19/2013 - 11/17/2013
Usage days	27/30 days (90%)
>= 4 hours	27 days (90%)
< 4 hours	0 days (0%)
Usage hours	169 hours 36 minutes
Average usage (total days)	5 hours 39 minutes
Average usage (days used)	6 hours 17 minutes
Median usage (days used)	5 hours 59 minutes

S9 Elite	
Serial number	00012498841
Mode	CPAP
Set pressure	8.6 cmH2O
EPR	Off
EPR level	Off

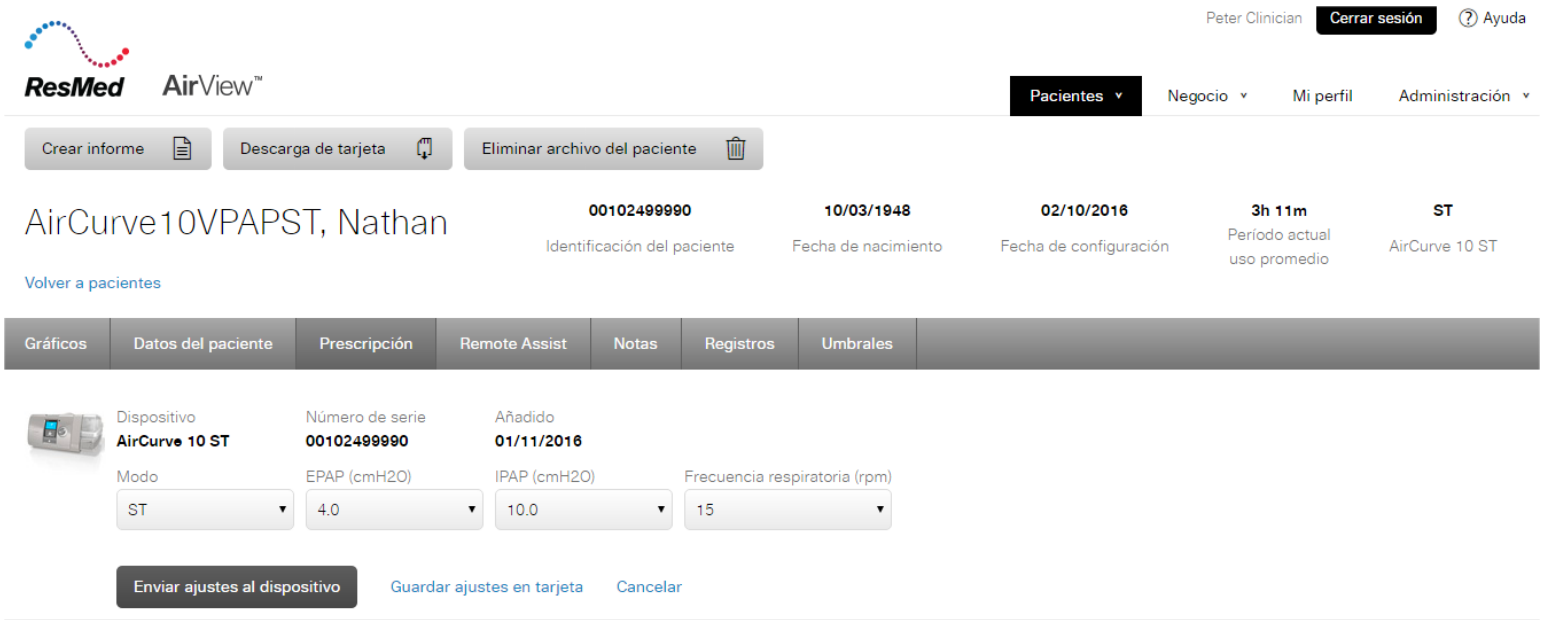
Therapy							
Leaks - L/min	Median:	9.9	95th percentile:	33.2	Maximum:	42.4
Events per hour	AI:	0.3	HI:	0.3	AHI:	0.6
Apnea Index	Central:	0.2	Obstructive:	0.1	Unknown:	0.0

Usage - hours

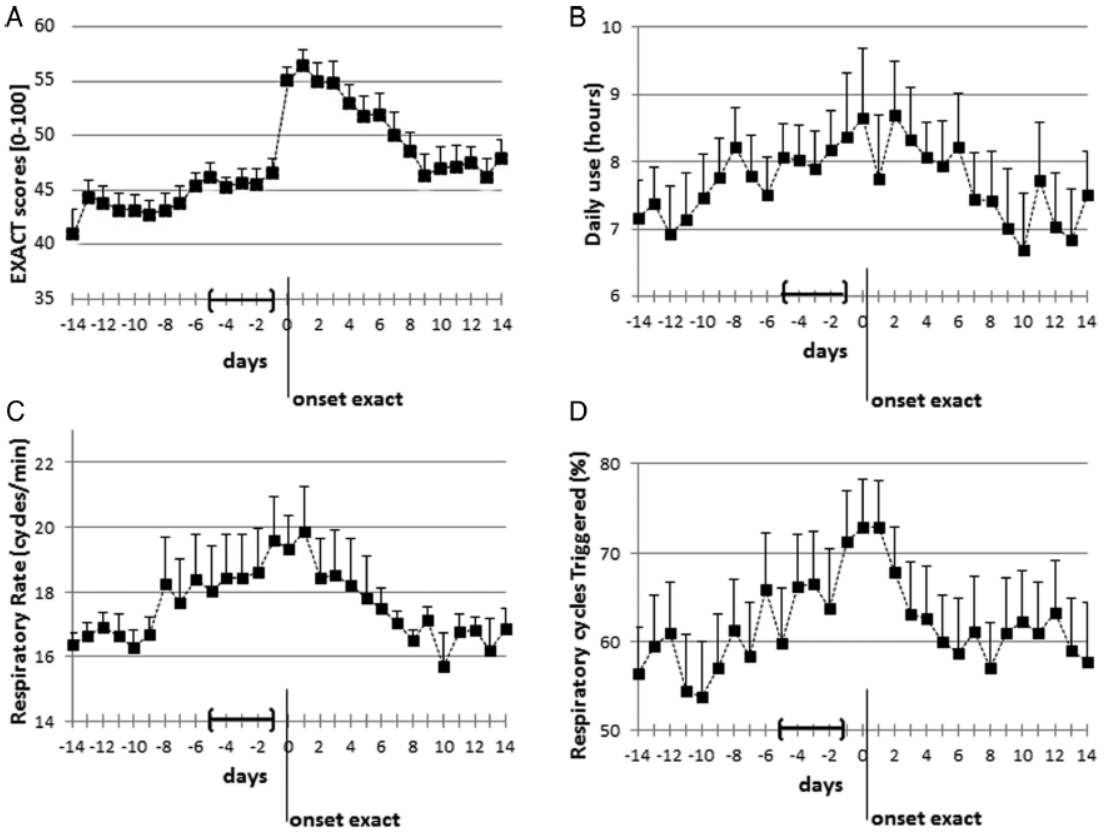
Pulsioxímetria, fr, volumen corriente…



Cambio de parámetros remoto



Parameters recorded by software of non-invasive ventilators predict COPD exacerbation: a proof-of-concept study



Borel, *et al.* Thorax 2015; 70: 284-285

TMTT, AirView, Catalunya

- Total 700 ptes
- No conexión hospitalaria
- Empresas
  - Oxigen salud
  - Oximesa

Fuente: Res Med 2018

HOSPITAL DE LA SANTA CREU I SANT PAU

UNIVERSITAT AUTÒNOMA DE BARCELONA

VENTILACIÓ MECÀNICA A DOMICILI

Rafael Calvo
INFERMER

Telèfon de contacte 608 884 435

De Dilluns a Dijous de 8 a 17 h.
Divendres de 8 a 14 h.

St. Antoni M. Claret, 167 · 08025 Barcelona · Tel. 93 291 90 00

M 4240 VMD

Mistral

TMTT y CAIDER, retos futuros

- Monitorización básica universal
- Monitorización ampliada selectiva
- Teletratamiento selectivo
- App , videoconferencia, plataforma wew
- Estudios de sueño (PLG de VM +capnografía) a domicilio
- Visita hospitalaria a domicilio (GSA, eco, analitica, espiromería, endoscopia…)
- Integración y compatibilidad de programas

Conclusiones

- La TM básica debería ser ya universal. Las empresas de TR deberían ser responsables de la misma
- La TM ampliada debería poder aplicarse a pacientes con soporte vital y durante algunas adaptaciones a VMD. Los prescriptores de TR deberían ser sus responsables.
- Es preciso conocer el nivel de TMTT adecuado a cada paciente
- El TT puede ser útil en pacientes seleccionados
- La visita hospitalaria a domicilio es ya una realidad
- Los modelos asistenciales mixtos (CAIDER) pueden ser una buena solución asistencial
- Los costes y la integración de sistemas siguen siendo una barrera para la TMTT de pacientes con VMD
- Existen dudas legales que deberían resolverse