

# Asistencia paliativa. IA y telemedicina

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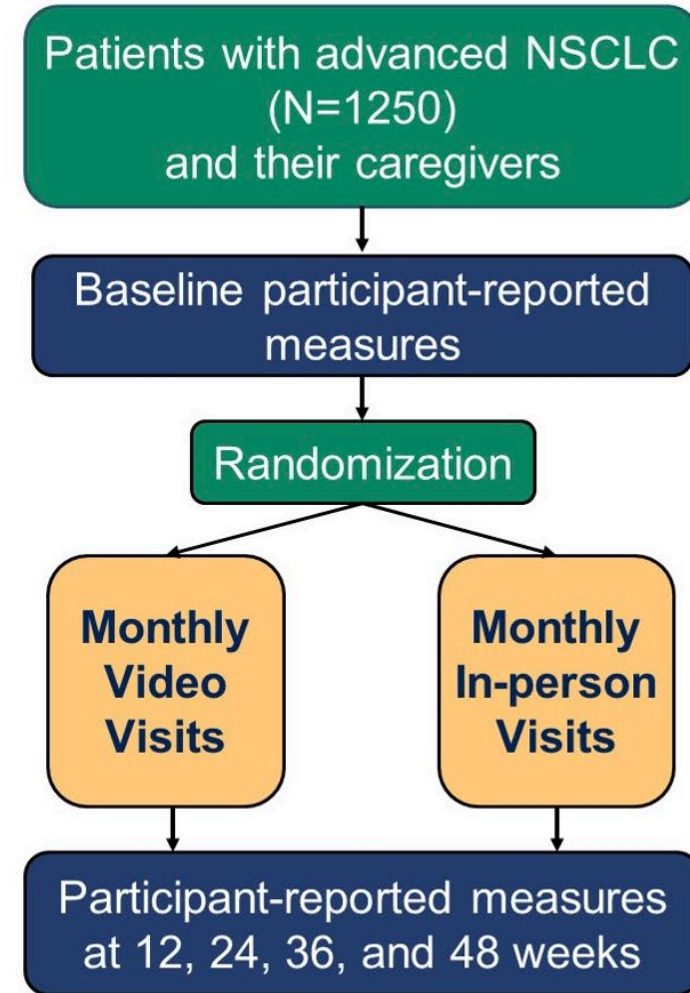
# Study Aims and Design

## Primary Aim:

- To evaluate the equivalence of the effect of delivering early palliative care using video versus in-person visits on patient-reported quality of life

## Secondary and Exploratory Aims:

- Satisfaction with care
- Caregiver attendance at study visits
- Mood symptoms



- Enrollment: 6/14/2018 to 5/4/2023
- Random assignment (1:1) to groups
- Technology provided if needed
- Intervention:
  - Monthly palliative care visits
  - Initial in-person encounter in video group to establish rapport
  - Clinician documentation of topics discussed during visits

### **Inclusion Criteria**

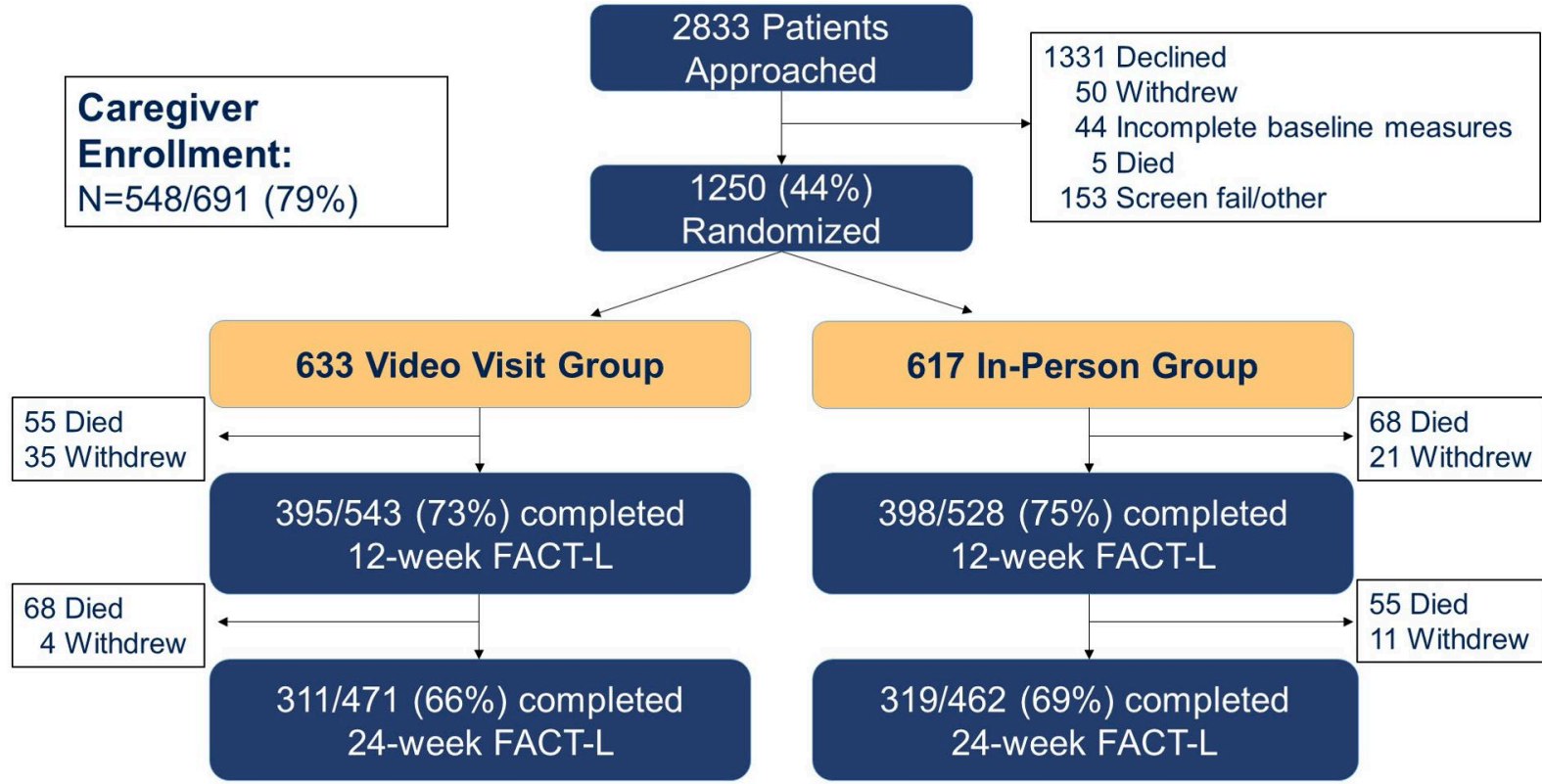
- Age  $\geq 18$  years
- Diagnosed with advanced non-small cell lung cancer in the prior 12 weeks
- Not being treated with curative intent
- ECOG Performance Status = 0-3
- Receiving cancer care at a participating site
- Able to read and respond to questions in English or Spanish

### **Exclusion Criteria**

- Already receiving outpatient palliative care or hospice services
- Cognitive or psychiatric conditions prohibiting consent or participation







Tiempo reclutamiento 5 a

- Tasa reclut. 44%
- Tasa retención 49-51%

p = 0.04 para equivalencia

Variable	Measure	Participant	Outcome
<b>Quality of Life</b>	Functional Assessment of Cancer Therapy – Lung (FACT-L)	Patient	Primary
<b>Satisfaction with Care</b>	Satisfaction and Care Delivery Questionnaire	Patient & Caregiver	Secondary
<b>Attendance of Caregiver at Visits</b>	Palliative care clinician visit summary form		Secondary
<b>Mood Symptoms</b>	Hospital Anxiety & Depression Scale (HADS)	Patient & Caregiver	Exploratory



Characteristic	Video Visit Group, N (%)	In-Person Group, N (%)
ALK	28 (4%)	26 (4%)
EGFR	113 (18%)	102 (17%)
ROS	6 (<1%)	0 (0%)
RET	11 (2%)	7 (1%)
Other or no mutation	475 (75%)	482 (78%)
Platinum-based doublet chemo ( $\pm$ 3 <sup>rd</sup> agent)	257 (41%)	277 (45%)
Radiation	138 (22%)	123 (20%)
Oral targeted therapy	126 (20%)	114 (19%)
Immunotherapy alone	93 (15%)	72 (12%)
Single agent IV chemotherapy	7 (1%)	8 (1%)
Concurrent chemotherapy and radiation	4 (<1%)	5 (<1%)
No treatment	8 (1%)	18 (3%)

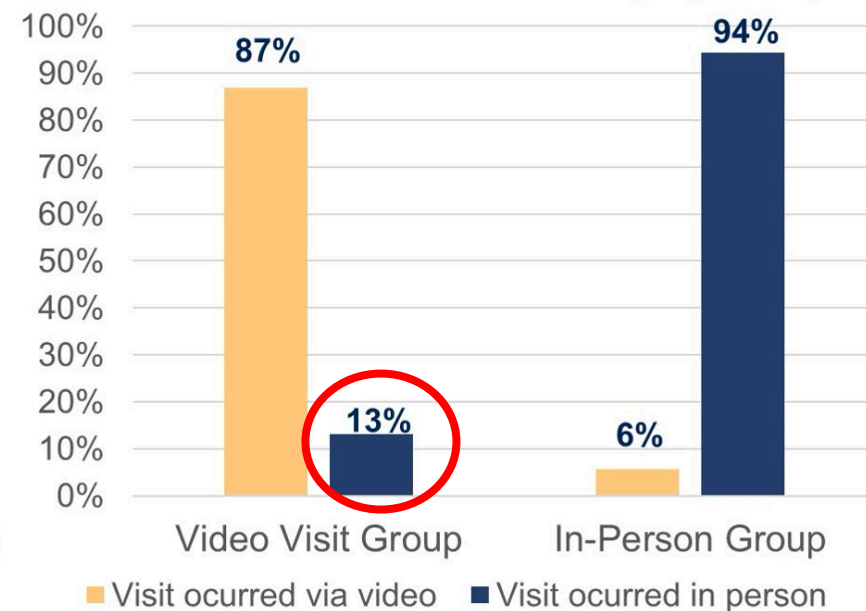
Mediana edad 65 años  
 > 50% mujeres

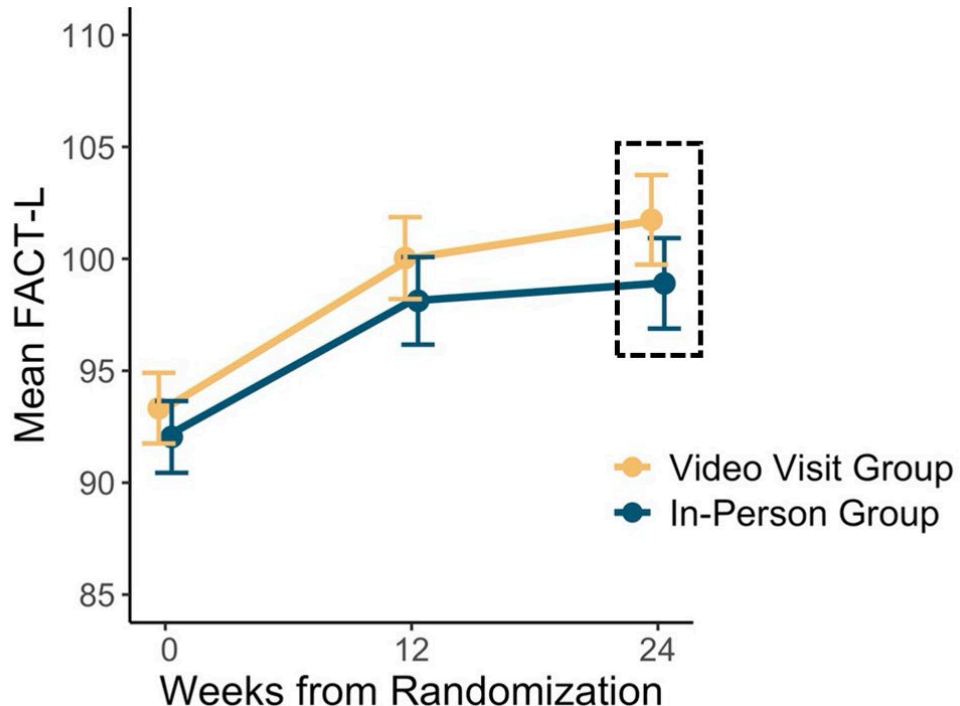
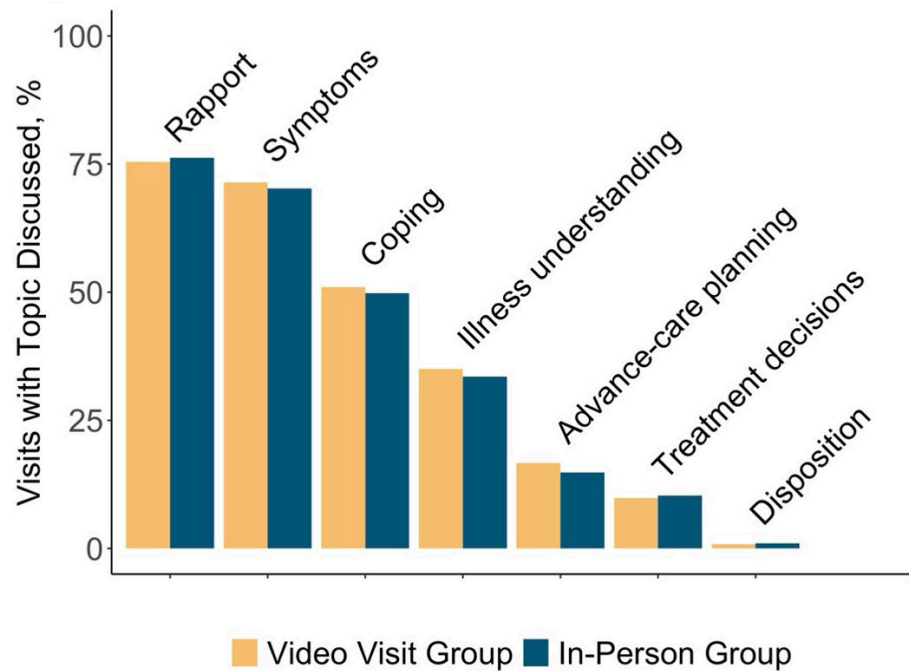
## Number of Palliative Care Visits by 24 Weeks

Mean (SD)

Video Visit	In-Person
4.7 (2.5)	4.9 (2.7)

## Palliative Care Visit Modality by Group





Outcome Measure	Video Visit Group Estimated Mean/Proportion	In-Person Group Estimated Mean/Proportion	Difference 95% (CI)	P
<b>Satisfaction with Care†</b>				
Patient report, mean	41.3	41.0	0.3 (-1.0, 1.7)	>0.99
Caregiver report, mean	37.2	36.8	0.4 (-1.5, 2.3)	>0.99
<b>Attendance of Caregiver at Visits</b>				
proportion	36.6%	49.7%	-13.0% (-17.6, -8.6)	<0.001

**Media ajustada FACT-L:**

- Video = 99.7
- Presencial = 97.7

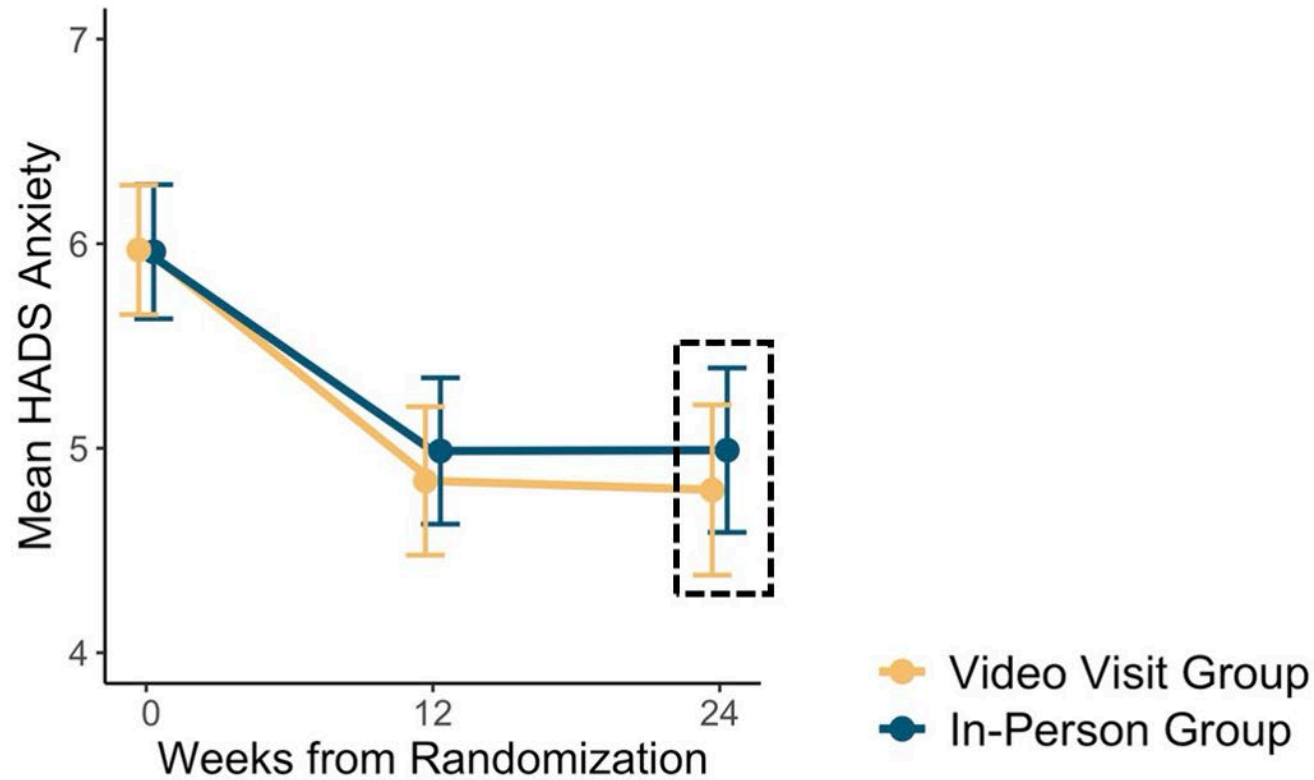
**p = 0.04 para equivalencia**



## Anxiety Symptoms on HADS

Difference (95% CI) = -0.2 (-0.6, 0.3)

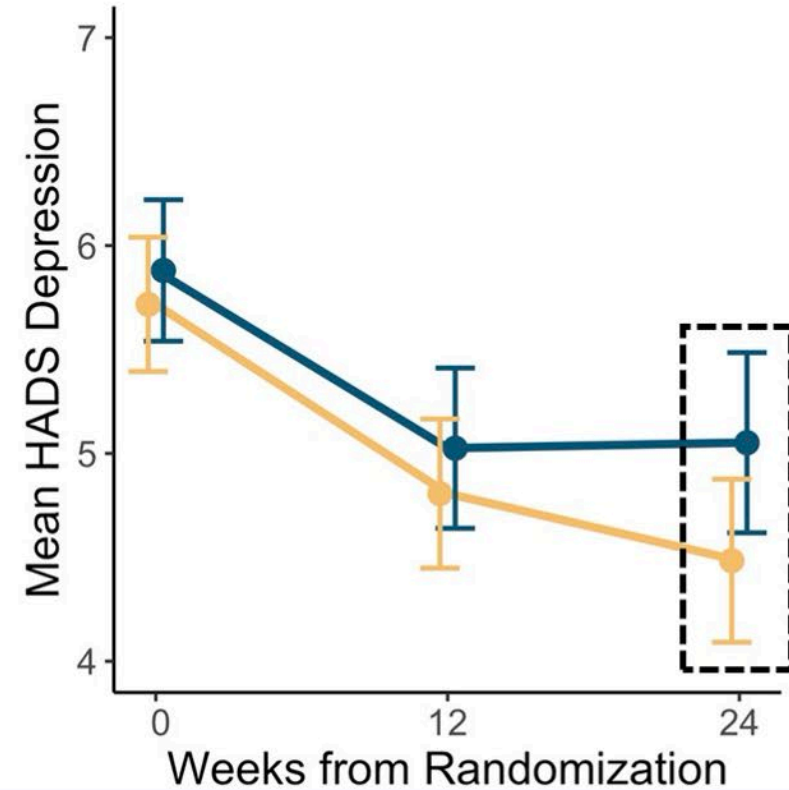
*Higher scores indicate worse anxiety*



## Depression Symptoms on HADS

Difference (95% CI) = -0.4 (-0.9, 0.1)

*Higher scores indicate worse depression*

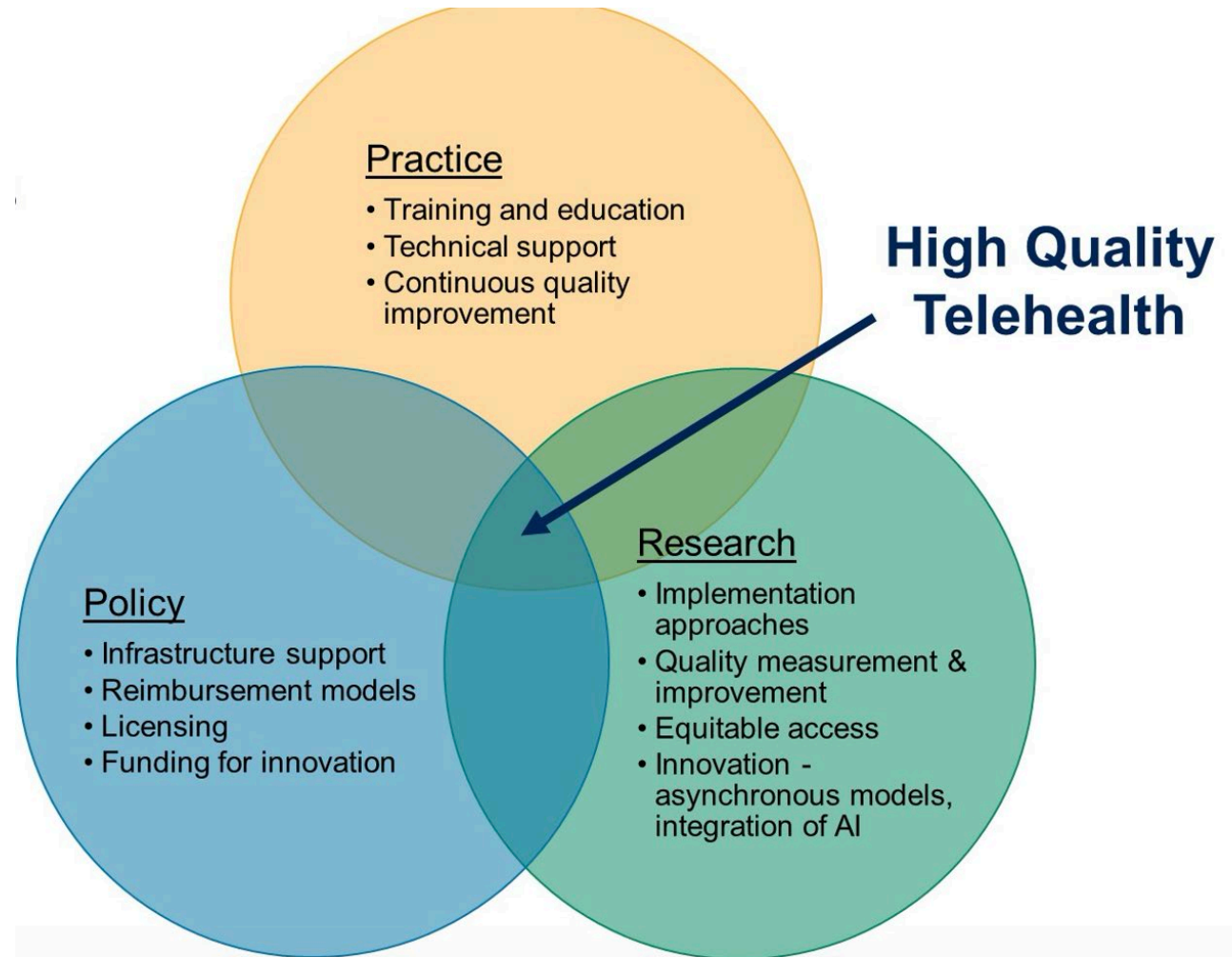


## Barriers

- Stigma
- Attitudes
- Lack of awareness of benefits
- Visit burden
- Lack of resources: HHR & infrastructure

## Facilitators

- Evidence
- Clear referral guidelines
- Education: patients & clinicians
- Care coordination
- Novel care delivery models





# Abstract #1502 N. Furuya et al. ENSURE-GA



	Items	Possible answers (score)
<b>A</b>	Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?	0 : severe decrease in food intake
		1 : moderate decrease in food intake
		2 : no decrease in food intake
<b>B</b>	Weight loss during the last 3 months	0 : weight loss > 3 kg
		1 : does not know
		2 : weight loss between 1 and 3 kgs
		3 : no weight loss
<b>C</b>	Mobility	0 : bed or chair bound
		1 : able to get out of bed/chair but does not go out
		2 : goes out
<b>E</b>	Neuropsychological problems	0 : severe dementia or depression
		1 : mild dementia or depression
		2 : no psychological problems
<b>F</b>	Body Mass Index (BMI (weight in kg) / (height in m <sup>2</sup> ))	0 : BMI < 19
		1 : BMI = 19 to BMI < 21
		2 : BMI = 21 to BMI < 23
		3 : BMI = 23 and > 23
<b>H</b>	Takes more than 3 medications per day	0 : yes
		1 : no
		2 : does not know
<b>P</b>	In comparison with other people of the same age, how does the patient consider his/her health status?	0.5 : does not know
		1 : as good
		2 : better
Age		0 : >85
		1 : 80-85
		2 : <80
<b>TOTAL SCORE</b>		<b>0 - 17</b>

**Cancer and Aging Research Group** <https://www.mycarg.org>

Improving the care of older adults with cancer

**Chemo-Toxicity Calculator Results**

Select the language: English

Patient Total Risk Score 10

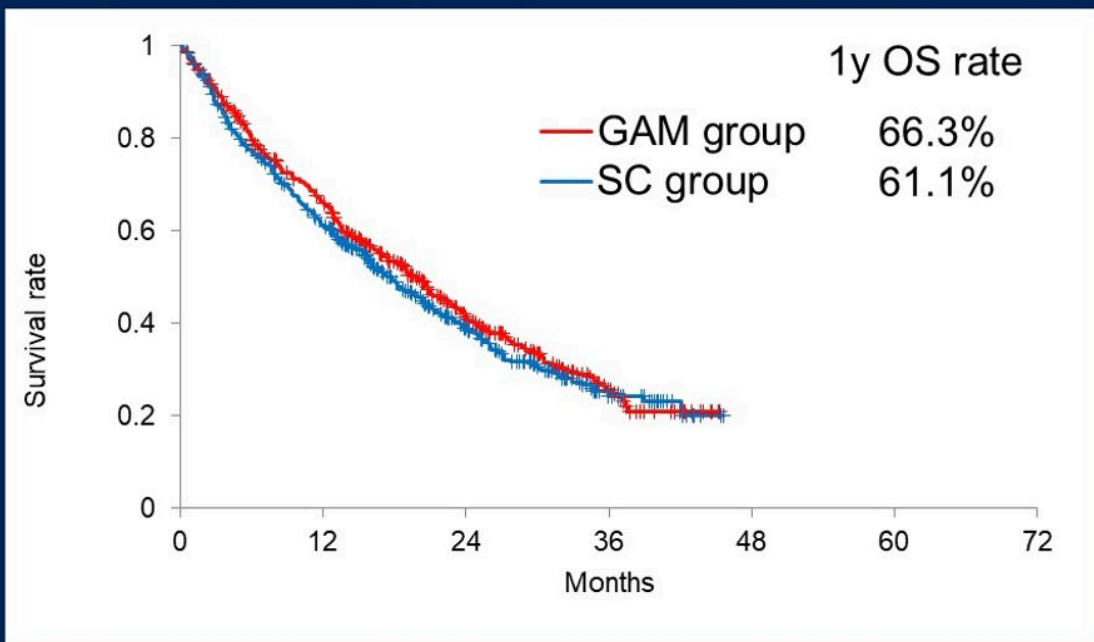
Patient Toxicity Risk 72%

Using the predictive model for treatment-related toxicity in older adults (Hurria et al, Journal of Clinical Oncology, 2011), this patient has a 72% risk of grade 3-5 toxicity\*.

Toxicity Factor/Question	Value/Response	Score
Patient's Age	Age >= 72	2
Cancer Type	Other	0
Dosage	Standard dose	2
Number of chemotherapy agents	Poly-chemo therapy	2
Hemoglobin	>11 g/dL	0
How is your hearing (with a hearing aid, if needed)?	Good	0
Number of falls in the past 6 months	None	0
Can you take your own medicines?	With some help (able to take medicine if someone prepares it for you and/or reminds you to take it)	1
Does your health limit you in walking one block?	Limited a little	2
During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities(like visiting with friends, relatives, etc)?	Some of the time	1
Creatinine Clearance	46	0

## Per protocol set (PPS)

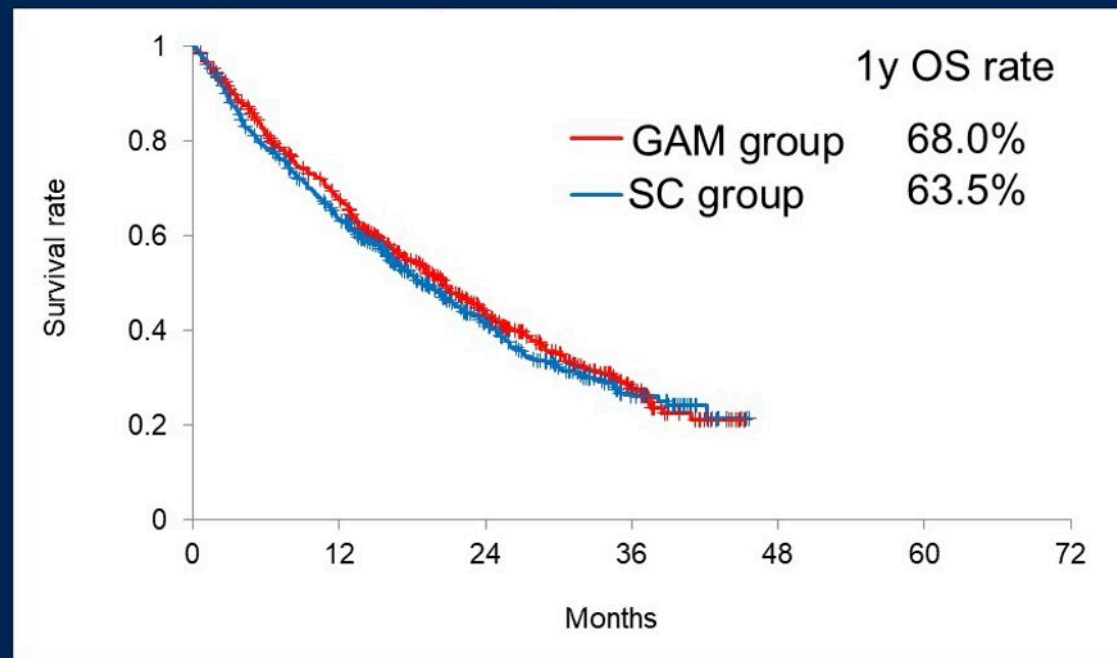
Median follow up: 439 Days



	GAM group	SC group
Median OS (months)	19.8	17.8
(95% CI)	(17.1-22.1)	(15.6-20.4)
<i>p</i> value	0.359	

## Full analysis set (FAS)

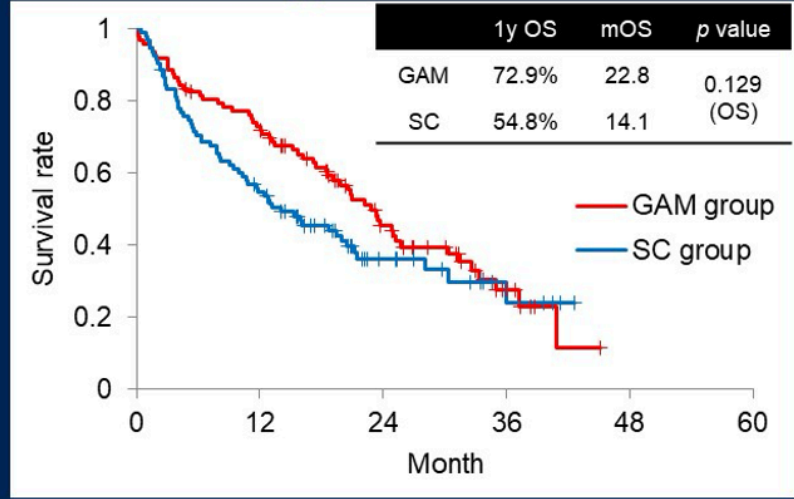
Median follow up: 463 Days



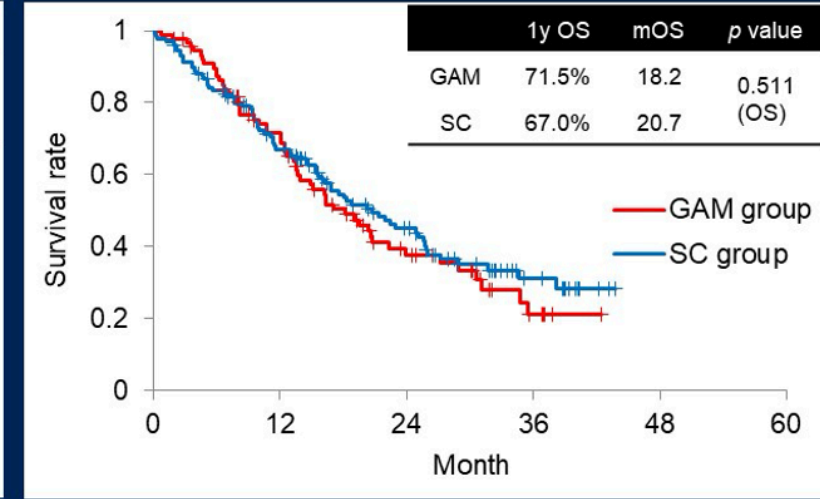
	GAM group	SC group
Median OS (months)	20.7	18.8
(95% CI)	(18.2-24.5)	(16.4-21.7)
<i>p</i> value	0.414	

Treatment regimen for NSCLC	GAM group (N=467)	SC group (N=444)
ICI monotherapy	97 (20.8%)	96 (21.6%)
ICI+Chemo combination	89 (19.1%)	127 (28.6%)
Cytotoxic chemotherapy alone	115 (24.6%)	87 (19.6%)
Targeted therapy	166 (35.5%)	133 (30.0%)

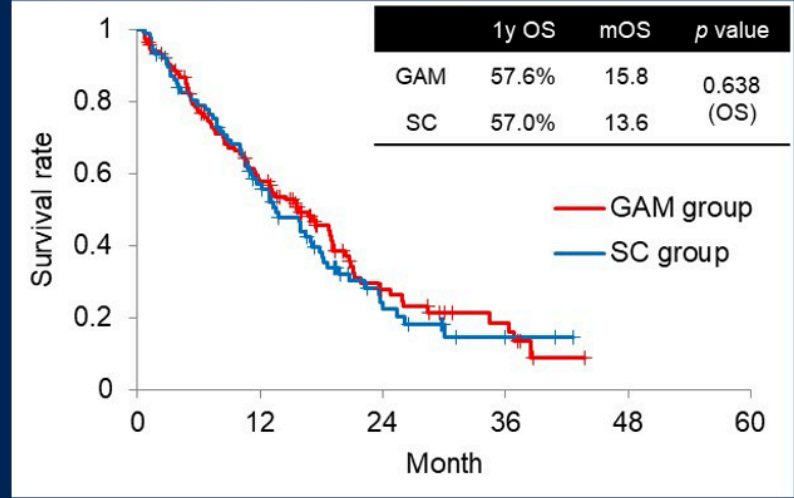
### ICI monotherapy



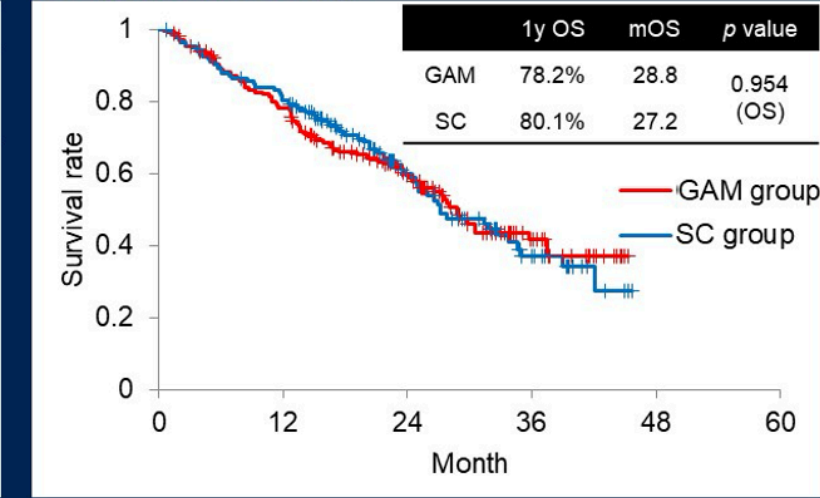
### ICI+Chemo combination



### Cytotoxic chemotherapy alone

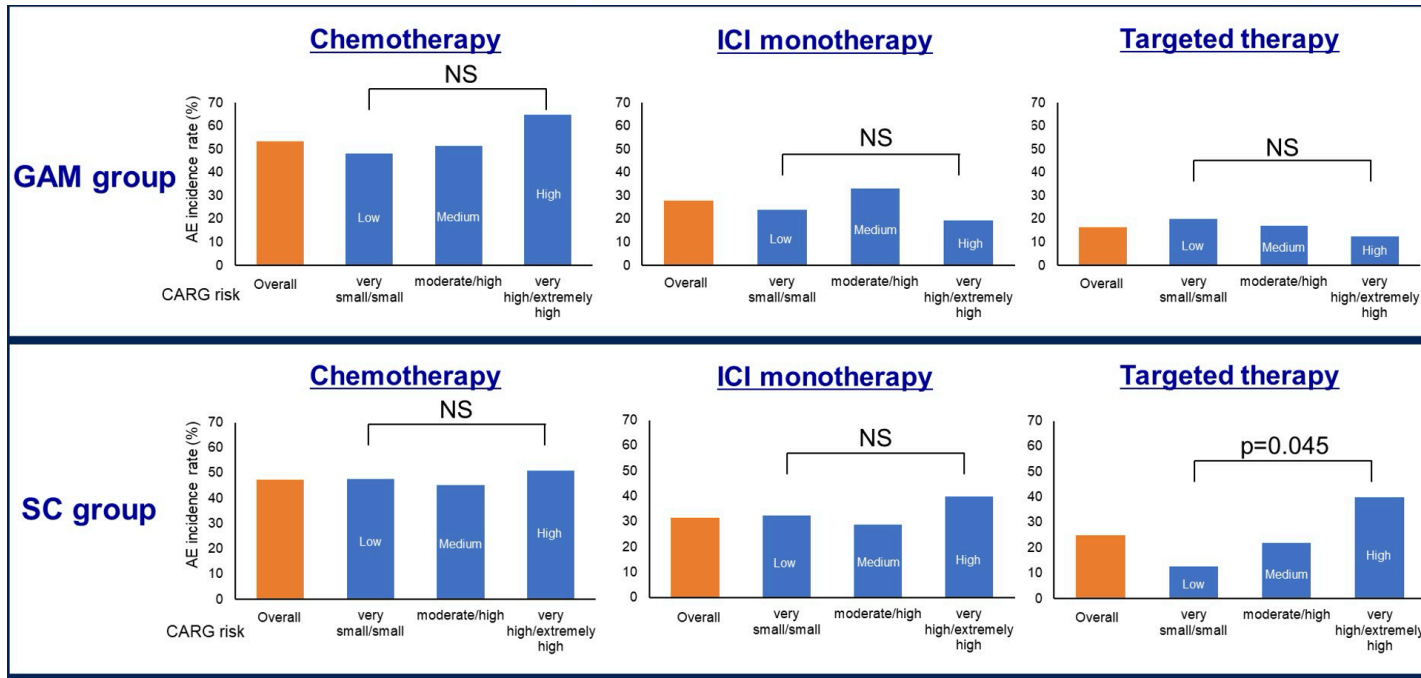


### Targeted therapy





	GAM group			SC group		
	N	G3/4 AE	p value	N	G3/4 AE	p value
<b>Overall CP</b>						
Negative (G8 $\geq$ 15, Normal)	87 (18.6%)	25 (28.7%)	0.086	70 (15.8%)	23 (32.9%)	0.351
Positive (G8 $\leq$ 14, Impaired)	380 (81.4%)	147 (38.7%)		374 (84.2%)	146 (39.0%)	
<b>Cytotoxic chemo alone / Chemo+ICI</b>						
Negative (G8 $\geq$ 15, Normal)	44 (21.6%)	18 (40.9%)	0.063	39 (18.1%)	15 (38.5%)	0.218
Positive (G8 $\leq$ 14, Impaired)	160 (78.4%)	91 (56.9%)		176 (81.9%)	88 (50.0%)	
<b>ICI monotherapy</b>						
Negative (G8 $\geq$ 15, Normal)	14 (14.4%)	0 (0%)	0.117	7 (7.3%)	1 (14.3%)	0.676
Positive (G8 $\leq$ 14, Impaired)	83 (85.6%)	16 (19.3%)		89 (92.7%)	23 (25.8%)	
<b>Targeted therapy</b>						
Negative (G8 $\geq$ 15, Normal)	29 (17.5%)	7 (24.1%)	0.656	24 (18.0%)	7 (29.2%)	1.000
Positive (G8 $\leq$ 14, Impaired)	137 (82.5%)	40 (29.2%)		109 (82.0%)	35 (32.1%)	



## Abstract #8016 B. Dally et al. IMPROVE

### Crterios inclusión:

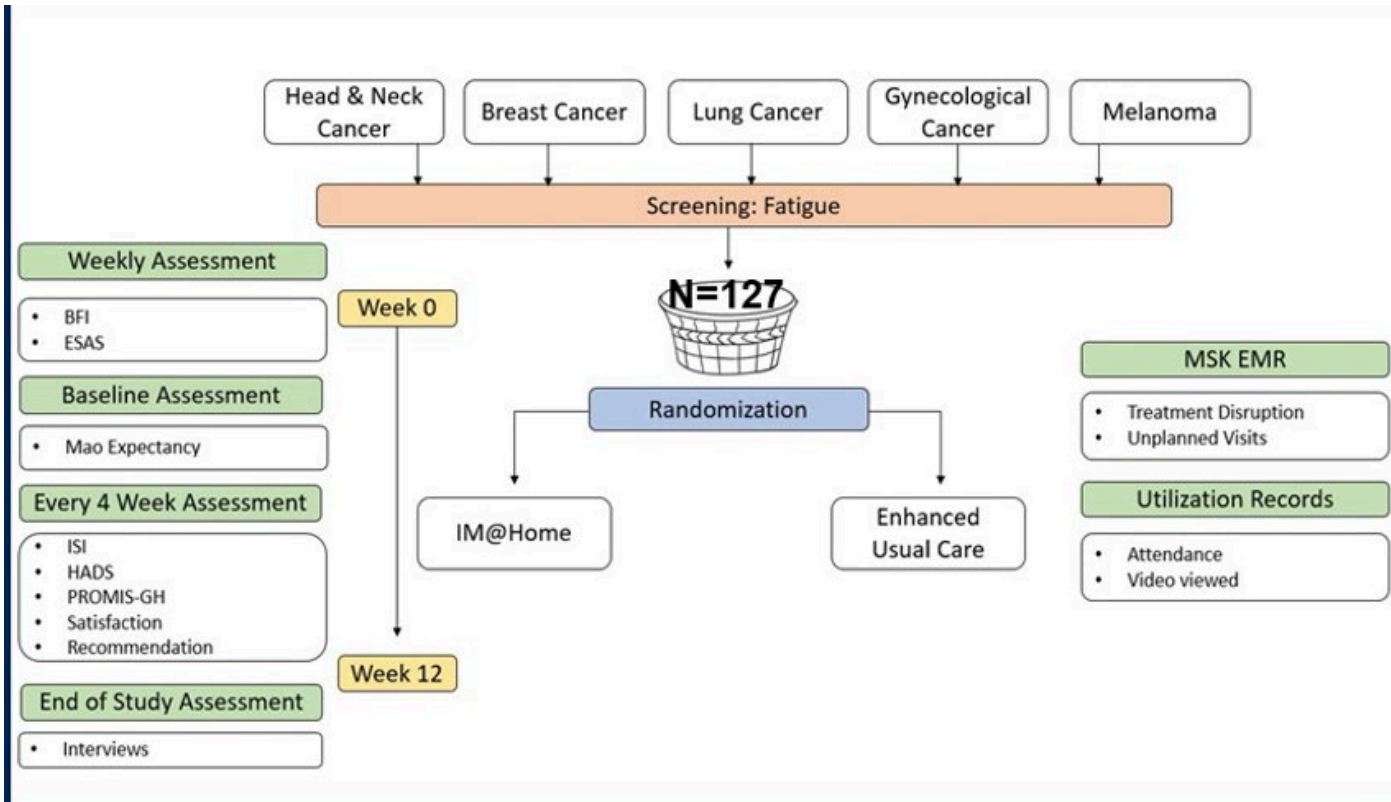
- 18 a
- En tto sistémico
- KPS > 60
- Astenia > 4
- Expectativa vida > 6 m

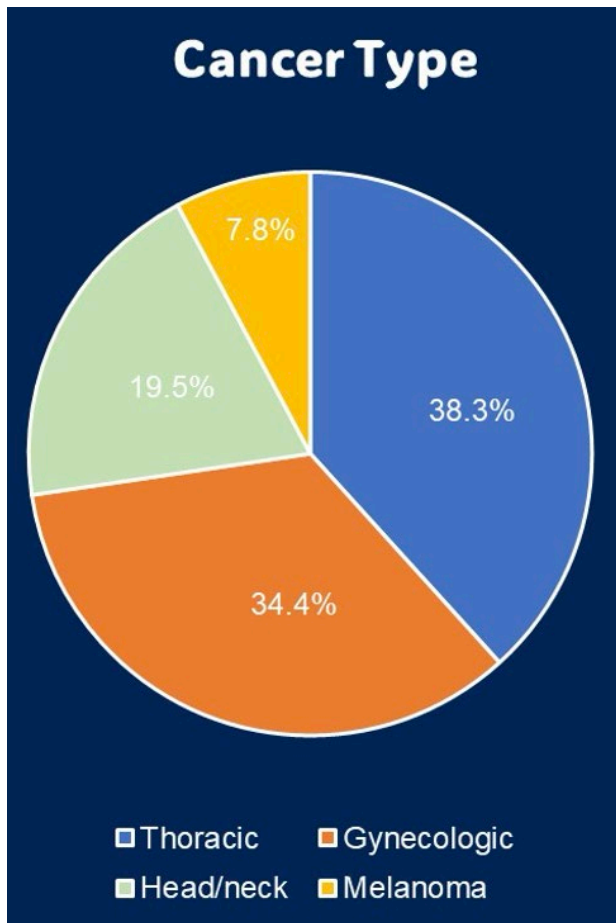
## Enhanced Usual Care

- Usual care + Meditation resources
- Unlimited access to 17 meditation, guided imagery, and music guided relaxation audio or video recordings
- Upon study completion complementary 3-month access to IM@Home

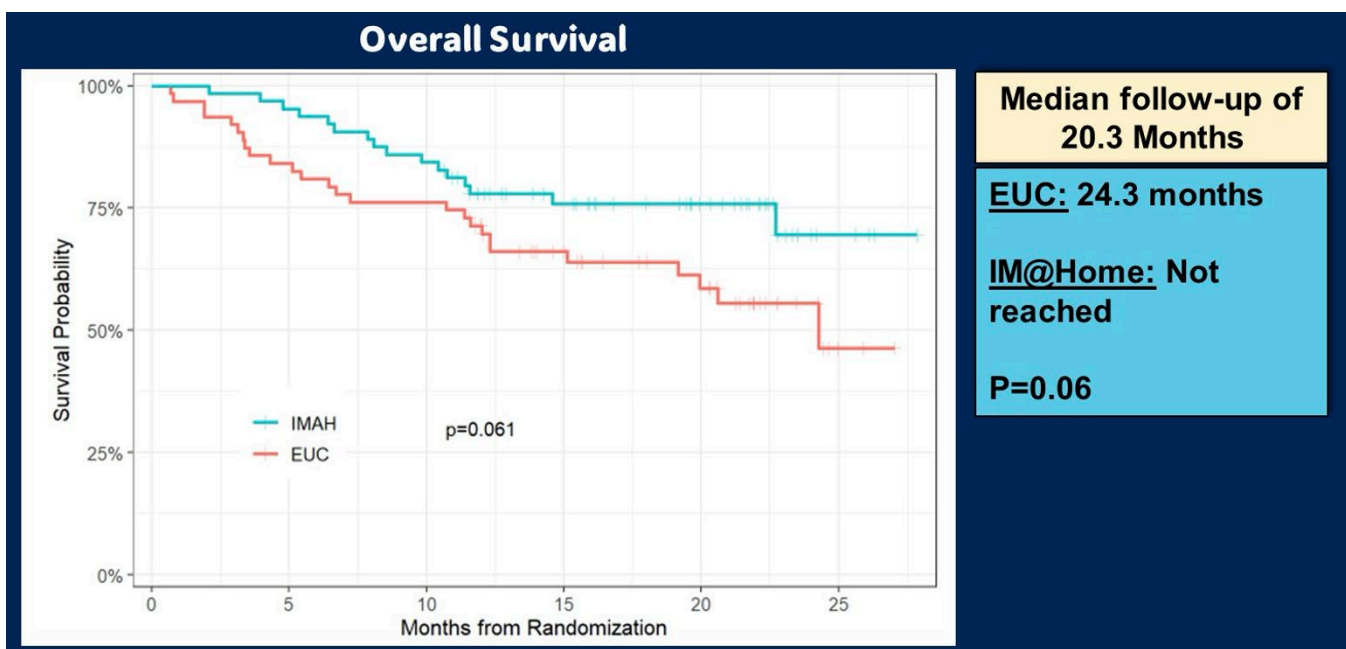
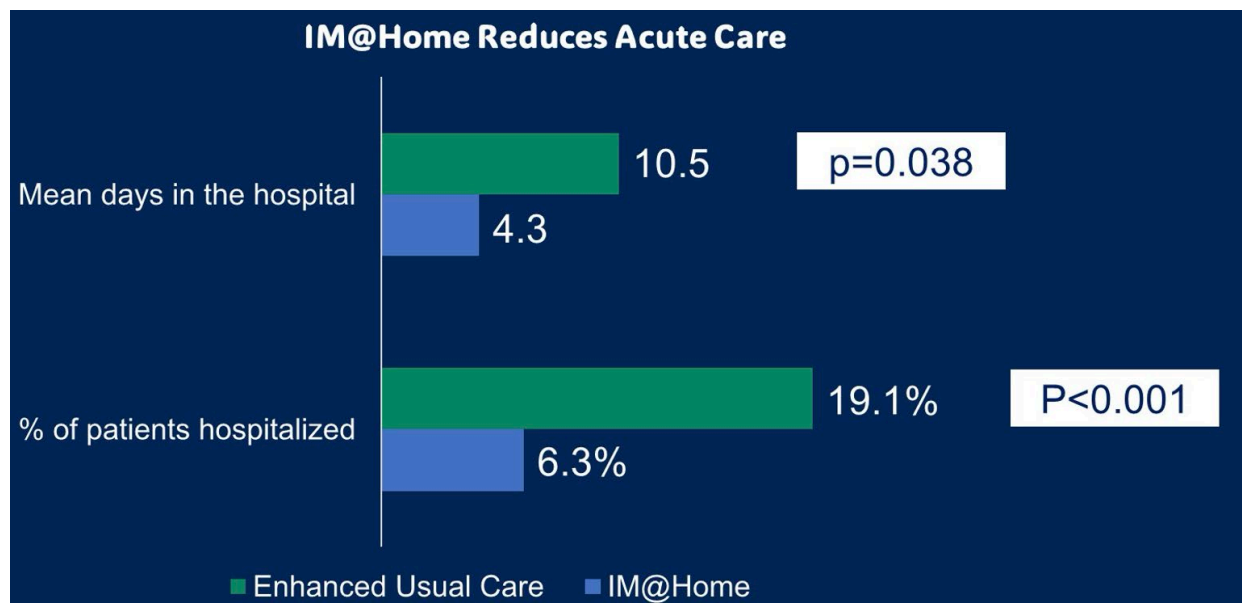
## IM@Home

- 23 virtual, live mind-body & fitness classes delivered via Zoom
- 30 to 60-minute classes, optional video participation & group chat
- Movement- (fitness, yoga, dance therapy, tai chi) & meditation-based (meditation, music therapy) classes
- Delivered by IM providers with expertise in oncology setting





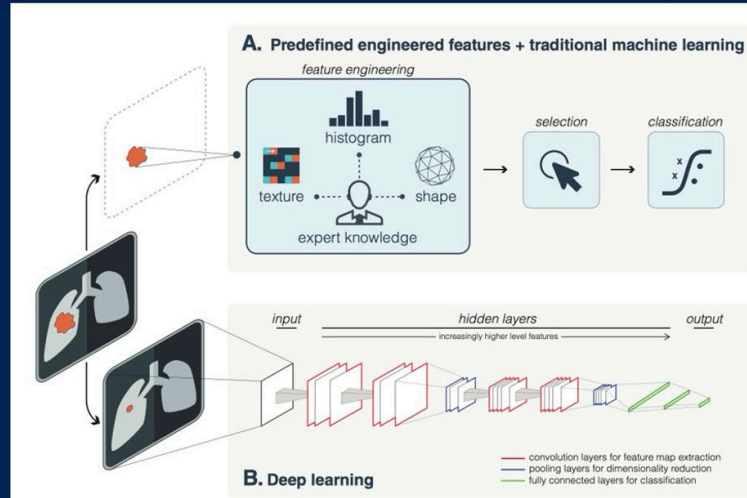
Mediana edad 64 a  
 85% mujeres



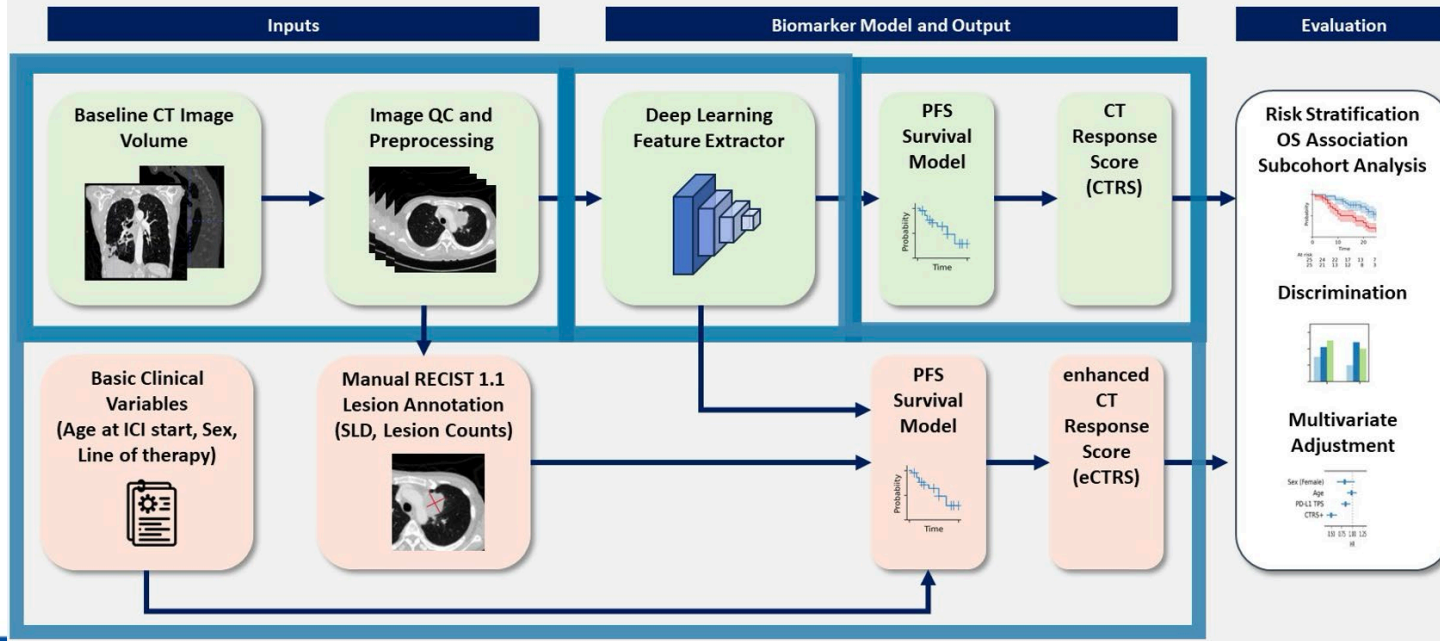


- Extraction of a large number of quantitative features from a patient's medical imaging (one or serial scans)
- AI / ML applied to build predictive models to identify patterns / associations not discernible by a radiologist
- Intended to support patient specific treatment planning and decision-making (response prediction, response monitoring)

Radiomics: Traditional vs. Deep Learning



Hosny, Nature Reviews Cancer 2018



## Training

### Dataset A

RWD Discovery  
1,173 patients  
19,148 CT series  
9 institutions, >50 clinical  
sites from US/Europe  
ICI start year: 2013-2021

Model development and  
internal cross-validation  
Training endpoint: PFS

## Independent Validation

### Dataset B

RWD Holdout  
Excludes confirmed  
EGFR/ALK mut+

458 patients  
10 institutions  
ICI start year: 2013-2022

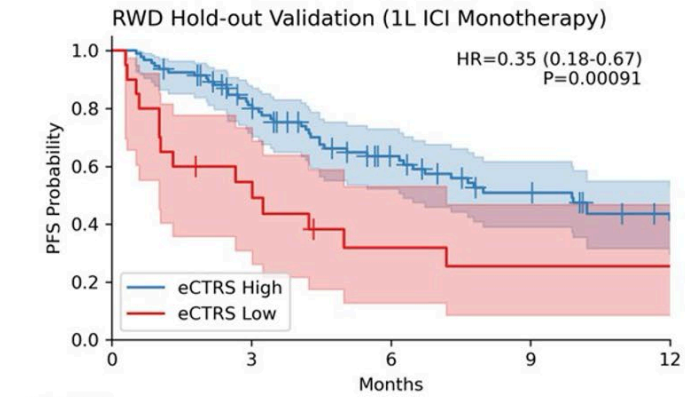
### Dataset C

NCT02573259  
(Pfizer, Inc.)  
54 patients  
ICI start year: 2018

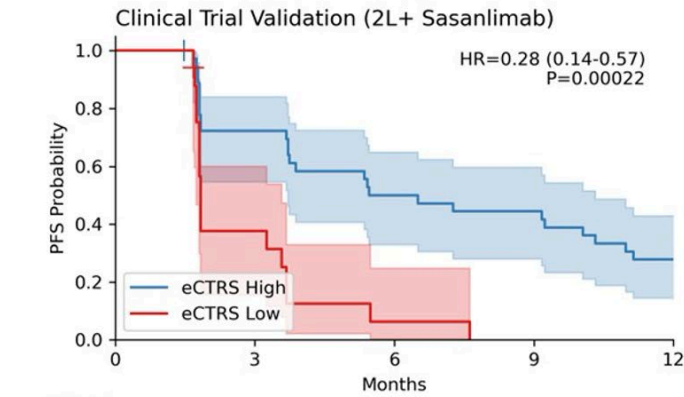
Phase I dose escalation  
study of Sasanlimab (anti-  
PD-1 checkpoint inhibitor) in  
ICI-naïve patients with  
advanced NSCLC

Data was collected under approval of the institutional review board or independent ethics committee of the participating institutions.

Variable	(A) RWD Discovery n=1,173	(B) RWD Holdout Validation n=458	(C) Clinical Trial n=54
Age, Mean years (range)	66.4 (19-95)	67.3 (34-93)	66.6 (49-85)
<b>Sex, Male (%)</b>	<b>655 (56%)</b>	<b>259 (57%)</b>	<b>43 (80%)</b>
<b>Histology (%)</b>			
Adenocarcinoma	836 (71%)	349 (76%)	N/A
Squamous cell carcinoma	189 (16%)	60 (13%)	N/A
Unknown	148 (14%)	49 (11%)	N/A
<b>PD-L1 expression (%)</b>			
Negative (<1%)	286 (24%)	104 (23%)	22 (41%)
Low (1-49%)	268 (23%)	109 (24%)	14 (26%)
High (50-100%)	390 (33%)	187 (41%)	10 (19%)
Unknown	229 (20%)	58 (13%)	8 (15%)
<b>Adrenal metastases (%)</b>	137 (14%)	70 (15%)	11 (20%)
<b>Bone metastases (%)</b>	218 (22%)	103 (22%)	7 (13%)
<b>Liver metastases (%)</b>	128 (13%)	71 (16%)	7 (13%)
<b>1st Line ICI (%)</b>	<b>661 (56%)</b>	<b>314 (69%)</b>	<b>0 (0%)</b>
<b>ICI Monotherapy (%)</b>	<b>639 (54%)</b>	<b>195 (42%)</b>	<b>54 (100%)</b>
<b>Median Survival (months)</b>			
PFS	8.3	6.7	3.7
OS	20.4	16.5	16.0

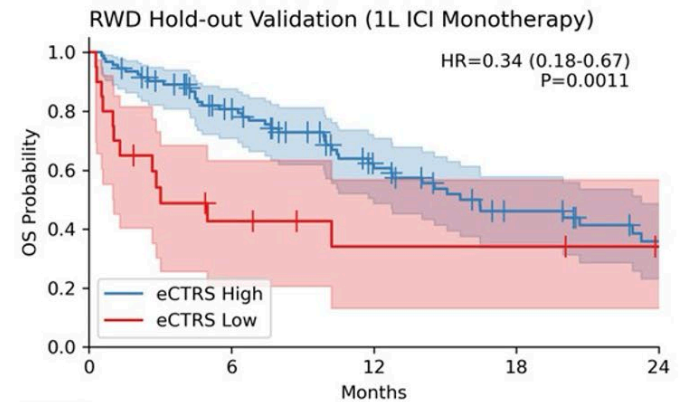


eCTRS High					
At risk	94	69	43	30	20
Censored	0	8	20	25	30
Events	0	17	31	39	44
eCTRS Low					
At risk	20	10	5	4	4
Censored	0	1	2	2	2
Events	0	9	13	14	14

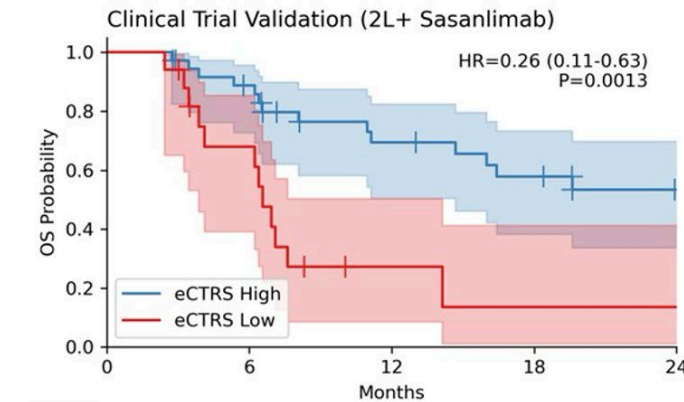


eCTRS High					
At risk	37	26	18	16	10
Censored	0	1	1	1	1
Events	0	10	18	20	26
eCTRS Low					
At risk	17	6	1	0	0
Censored	0	1	1	1	1
Events	0	10	15	16	16

HR: Unadjusted Hazard Ratio; P: Log-rank test P-value

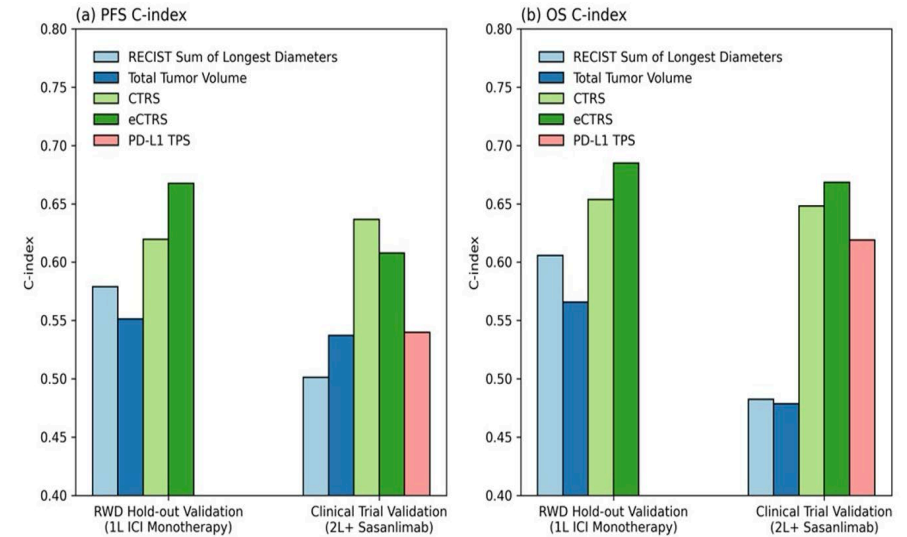


eCTRS High					
At risk	93	64	37	21	13
Censored	1	13	26	34	38
Events	0	17	31	39	43
eCTRS Low					
At risk	20	7	4	4	2
Censored	0	2	4	4	6
Events	0	11	12	12	12



eCTRS High					
At risk	37	30	20	15	10
Censored	0	3	7	9	13
Events	0	4	10	13	14
eCTRS Low					
At risk	17	10	2	1	1
Censored	0	2	4	4	4
Events	0	5	11	12	12

HR: Unadjusted Hazard Ratio; P: Log-rank test P-value



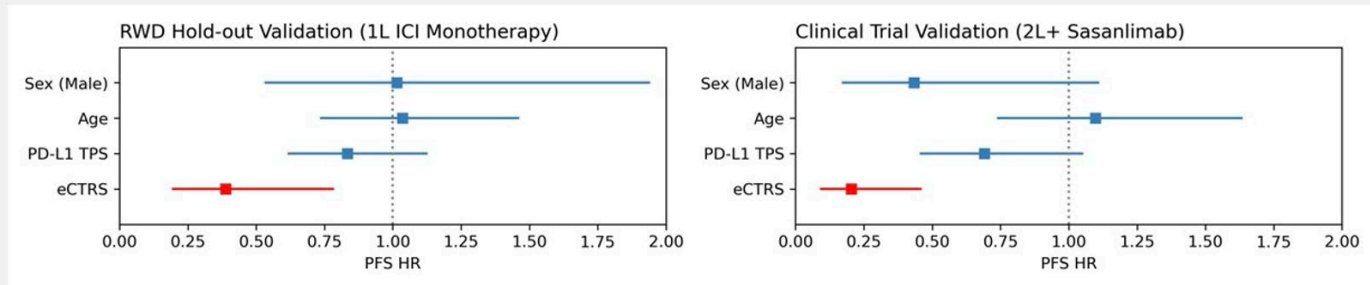
CTRS: CT Response Score; eCTRS: enhanced CT Response Score with Manual Annotation



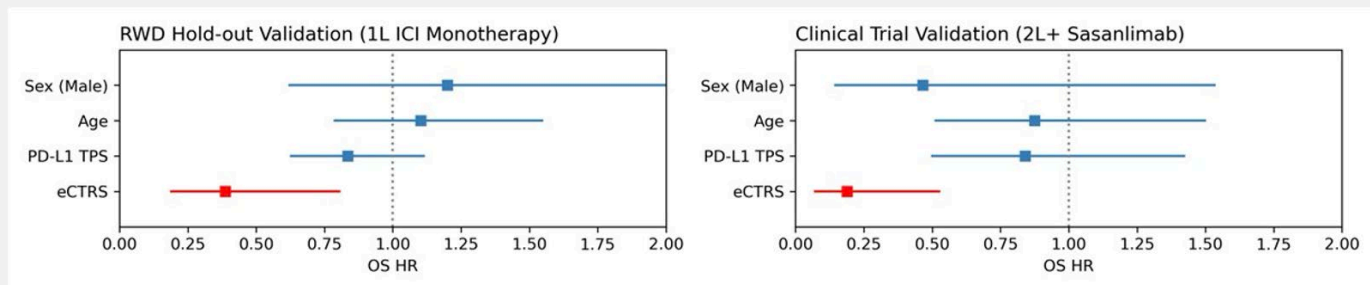


Dataset	N	Treatment Cohort	Outcome Measure	Adjusted Hazard Ratio (95% CI)	Adjusted Hazard Ratio P value
<b>Dataset B: RWD Hold-out Validation</b>	458	ICI all-comers	PFS	0.61 (0.44-0.85)	0.0036
			OS	0.61 (0.42-0.87)	0.0068
	114	1L ICI monotherapy	PFS	0.39 (0.19-0.78)	0.0084
			OS	0.39 (0.19-0.81)	0.012
<b>Dataset C: Clinical Trial Validation</b>	54	2L+ ICI monotherapy	PFS	0.20 (0.09-0.46)	0.0001
			OS	0.19 (0.07-0.53)	0.0015

PFS



OS



HR: Hazard ratio and 95% Confidence Interval based on multivariate adjusted Cox model

- Los avances tecnológicos están cambiando la asistencia sanitaria
- Las herramientas de la telemedicina pueden permitir una continuidad asistencial especialmente relevante en un contexto paliativo
- Es necesaria una planificación previa, un control de la implementación y un seguimiento de los resultados
- El análisis de datos por mecanismos de IA muestran un potencial de aplicación en las fases diagnósticas (radiómica, patología digital) y pueden ser factores predictivos de resultados terapéuticos

