


Background

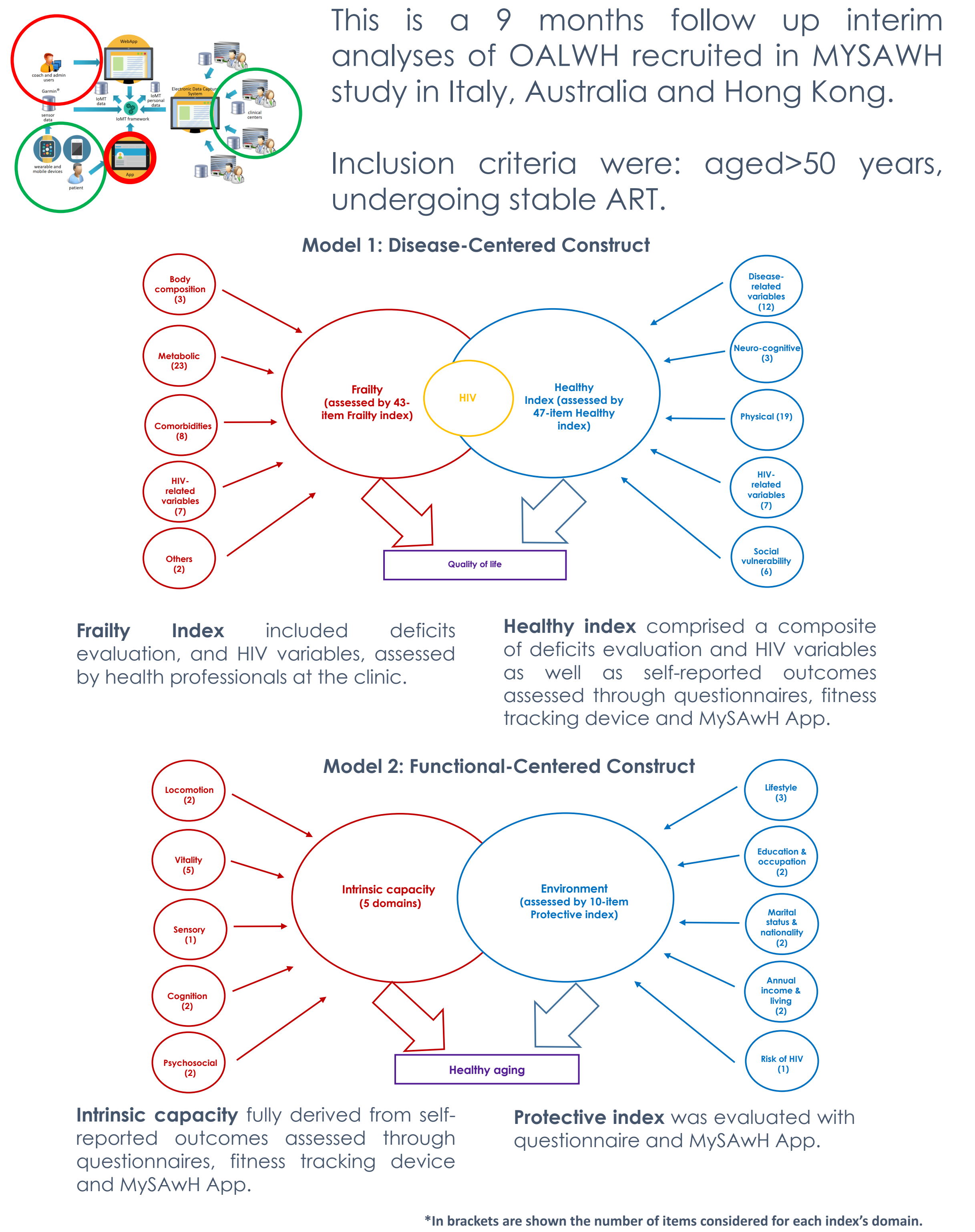
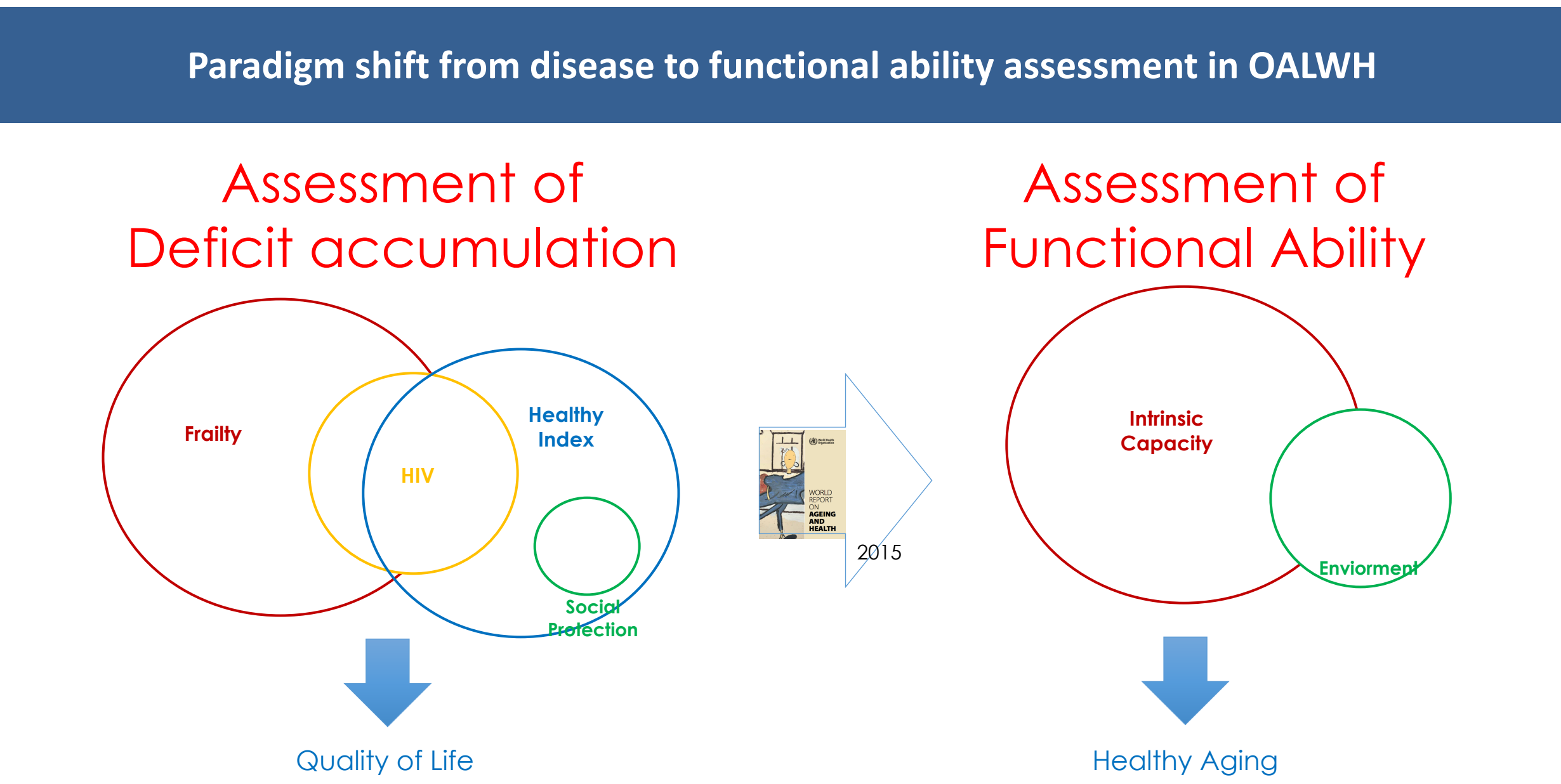
My Smart Age with HIV (MySAwH) is a multi-center prospective ongoing study designed to **empower** older adults living with HIV (OALWH) to achieve **healthy aging**. It is based on evaluation of HIV variables, a standardized comprehensive geriatric assessment and patient-related outcomes gathered at study visit and by mean of an **Internet of Medical thing framework (IoMT)** which include a fitness tracking wearable device and a dedicated smart phone app (MySAwH App).



Methods

This is a 9 months follow up interim analyses of OALWH recruited in MYSAWH study in Italy, Australia and Hong Kong.

Inclusion criteria were: aged>50 years, undergoing stable ART.



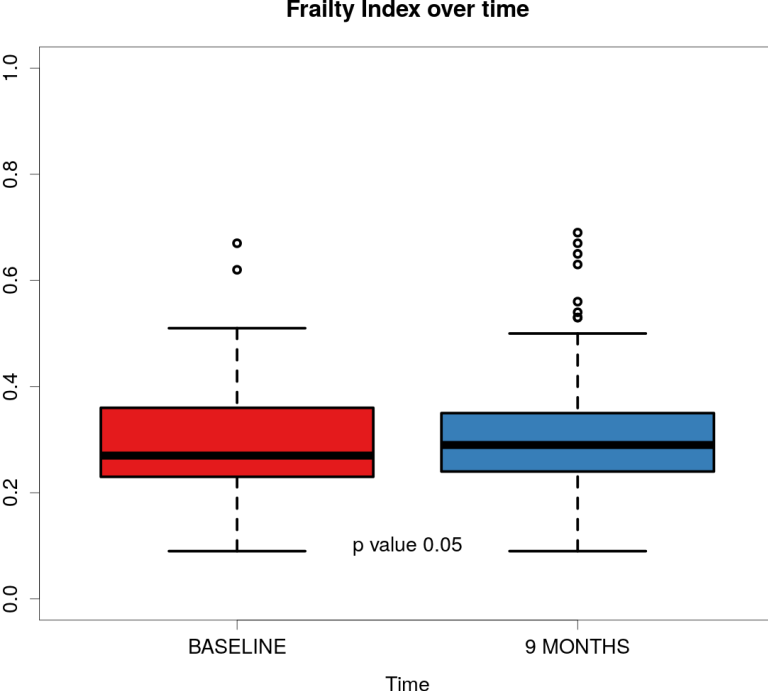
Objective

We aimed to characterise longitudinally negative and positive health features in OALWH in different geographical regions. Negative health features were conceptualised as deficit accumulation and described by mean of Frailty and Healthy Index assessed in the clinic (conceptual model 1). Positive health features were conceptualised as functional ability and described by Intrinsic Capacity and Environment assessed using Internet of Medical thing framework (conceptual model 2).

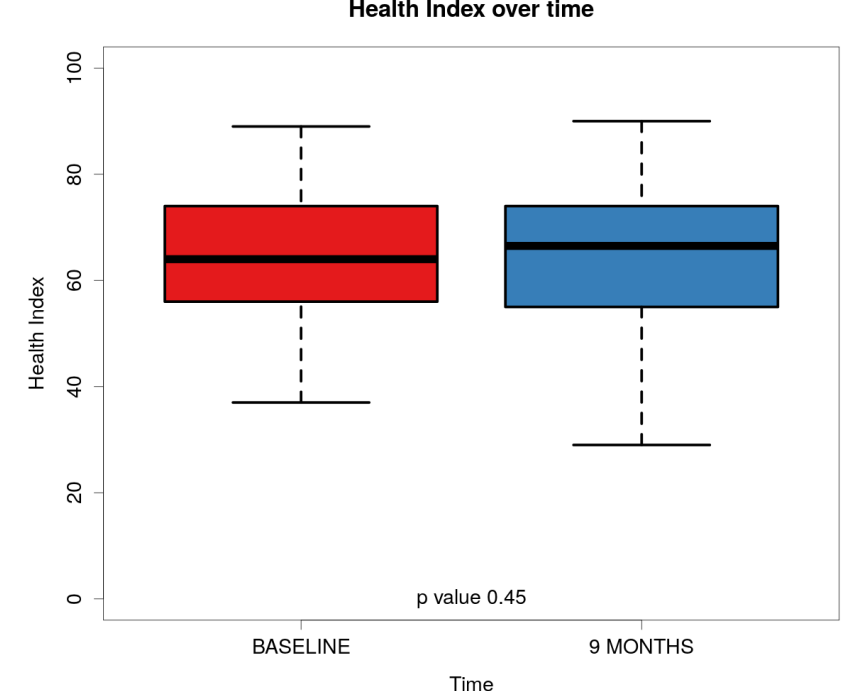
Results

	Baseline					Follow-up				
	Total N = 224	Modena N = 117 (52.23%)	Sydney N = 82 (36.61%)	Hong Kong N = 25 (11.16%)	P	Total N = 224	Modena N = 117 (52.23%)	Sydney N = 82 (36.61%)	Hong Kong N = 25 (11.16%)	P
Mean (SD) or N. (%)										
DEMOGRAPHIC AND ANTHROPOMETRIC VARIABLES										
Age	58.57 (5.74)	57.65 (5.23)	59.12 (5.81)	61.11 (6.92)	0.02	58.57 (5.74)	57.65 (5.23)	59.12 (5.81)	61.11 (6.92)	0.02
Men	190 (86.76%)	87 (76.32%)	80 (100%)	23 (92%)	<0.01	110 (80.29%)	87 (77.68%)	80 (100%)	23 (92%)	0.17
BMI (Kg/m ²)	25.13 (4.38)	24.59 (4.12)	26.36 (4.75)	23.59 (3.27)	0.002	25.23 (4.06)	24.66 (3.82)	26.57 (4.33)	23.75 (3.18)	<0.01
HIV-RELATED VARIABLES										
HIV viral load undetectability	204 (91.07%)	114 (97.44%)	66 (80.49%)	24 (96%)	<0.01	191 (86.82%)	111 (95.69%)	56 (70.89%)	24 (96%)	<0.01
Current CD 4 (cells/μl)	658.5 (480.25-817.75)	675 (493.25-819.5)	643.5 (484.25-822)	657.5 (372-736)	0.36	650 (482.5-842.5)	667 (498.5-873)	640.5 (484.25-821.25)	567 (341-664)	0.09
CD4/CD8	0.9 (0.45)	0.88 (0.39)	0.97 (0.55)	0.83 (0.31)	0.73	1.03 (2.15)	0.89 (0.39)	1.32 (3.53)	0.79 (0.3)	0.39
COMORBIDITIES										
Chronic Kidney Disease	28 (13.02%)	19 (16.24%)	7 (9.46%)	2 (8.33%)	0.30	34 (15.32%)	29 (25%)	4 (4.94%)	1 (4%)	<0.01
Osteoporosis	39 (18.14%)	33 (28.21%)	5 (6.76%)	1 (4.17%)	<0.01	43 (19.46%)	35 (30.17%)	5 (6.25%)	3 (12%)	<0.01
Cardiovascular disease	27 (12.56%)	8 (6.84%)	17 (22.97%)	2 (8.33%)	<0.01	26 (11.71%)	10 (8.62%)	12 (14.81%)	4 (16%)	0.32129
Diabetes Mellitus type 2	45 (20.93%)	24 (20.51%)	7 (9.46%)	14 (58.33%)	<0.01	52 (23.42%)	29 (25%)	6 (7.41%)	17 (68%)	<0.01
Hypertension	91 (42.33%)	61 (52.14%)	16 (21.62%)	14 (58.33%)	<0.01	109 (49.1%)	72 (62.07%)	24 (29.63%)	13 (52%)	<0.01
Cancer	9 (4.19%)	1 (0.85%)	8 (10.81%)	0 (0%)	<0.01	12 (5.41%)	6 (5.17%)	5 (6.17%)	1 (4%)	0.9
Chirrosis	16 (7.44%)	13 (11.11%)	2 (2.7%)	1 (4.17%)	0.07	16 (7.21%)	13 (11.21%)	2 (2.47%)	1 (4%)	0.05
COPD	12 (5.58%)	7 (5.98%)	5 (6.76%)	0 (0%)	0.43	17 (7.66%)	9 (7.76%)	8 (9.88%)	0 (0%)	0.26
Multimorbidity	34 (15.18%)	22 (18.8%)	7 (8.54%)	5 (20%)	0.1	39 (17.41%)	26 (22.22%)	7 (8.54%)	6 (24%)	0.02
GERIATRIC ASSESSMENT										
IADL score	0.42 (0.49)	0.8 (0.4)	0.01 (0)	0.01 (0)	<0.01	0.65 (0.47)	0.89 (0.31)	N/A	0.01 (0)	<0.01
Falls	22 (10.05%)	11 (9.65%)	9 (11.25%)	2 (8%)	0.87	6 (4.38%)	2 (1.79%)	N/A	4 (16%)	<0.01
Hearing Handicap Inventory in the Elderly	6.11 (13.74)	4.14 (10.87)	9.01 (17.55)	4.25 (7.21)	0.91	4.44 (11.16)	4.37 (11.94)	N/A	4.67 (8.68)	0.65
Urogenital Distress Inventory 4 (UDI 4)	5.13 (9.8)	3.36 (10.64)	6.75 (10.8)	2.36 (1.75)	<0.01	3.24 (8.95)	3.68 (11.52)	N/A	2.6 (2)	<0.01
GDS score	0.17 (0-0.5)	0.17 (0-0.33)	0.17 (0-0.33)	0.5 (0.17-1)	<0.01	0.17 (0-0.5)	0.17 (0-0.5)	N/A	0.33 (0.17-0.83)	0.1
Frailty Index (FI)	0.29 (0.1)	0.29 (0.12)	0.29 (0.07)	0.33 (0.09)	0.12	0.3 (0.1)	0.3 (0.12)	0.3 (0.07)	0.33 (0.08)	0.03
Health Index (HI)	63.65 (11.5)	61.68 (10.84)	68.49 (11.28)	56.67 (10.37)	<0.01	64.73 (12.02)	62.85 (11.25)	70.02 (11.36)	54.75 (20.63)	<0.01
Quality of life (QoL) EQ-5D-5L	0.84 (0.15)	0.86 (0.14)	0.84 (0.18)	0.92 (0.1)	0.01	0.9 (0.08)	0.9 (0.08)	N/A	0.9 (0.1)	0.92

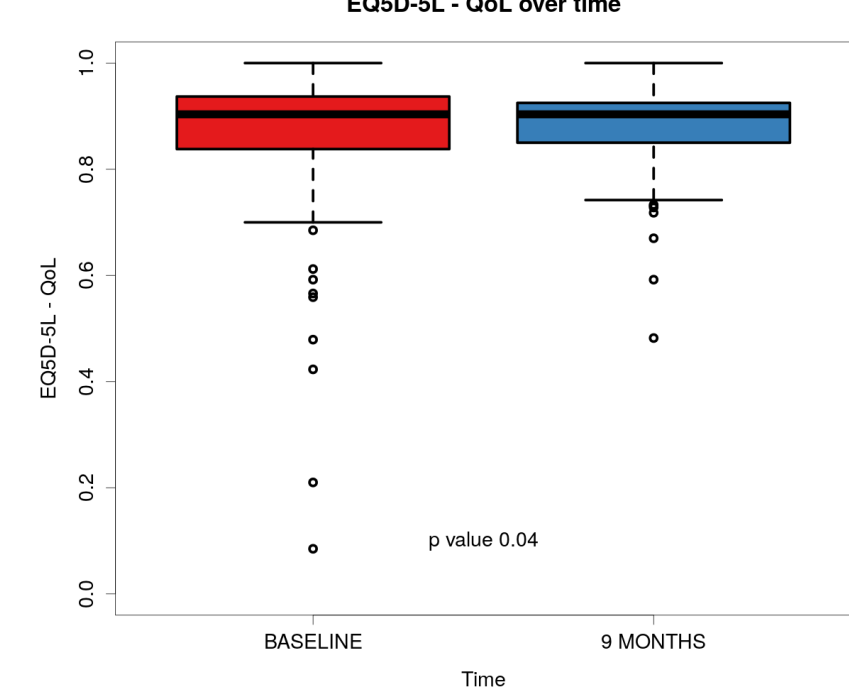
Frailty Index over time

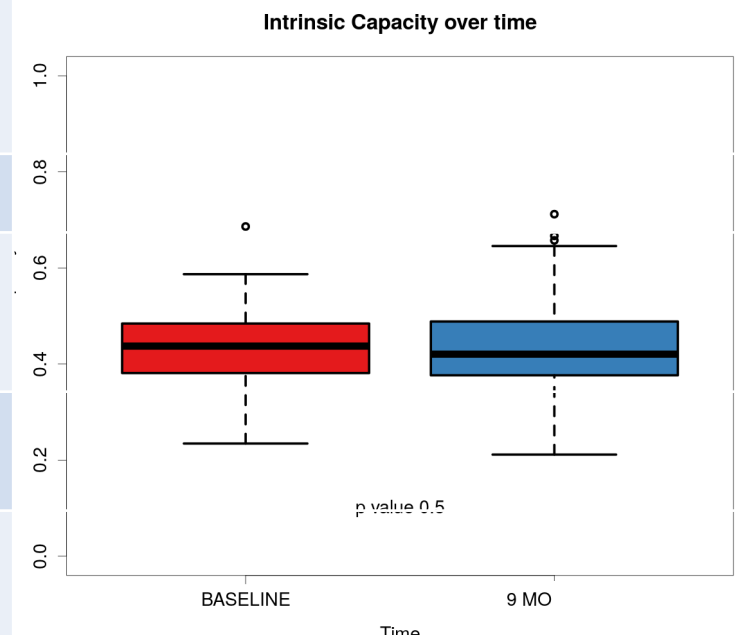
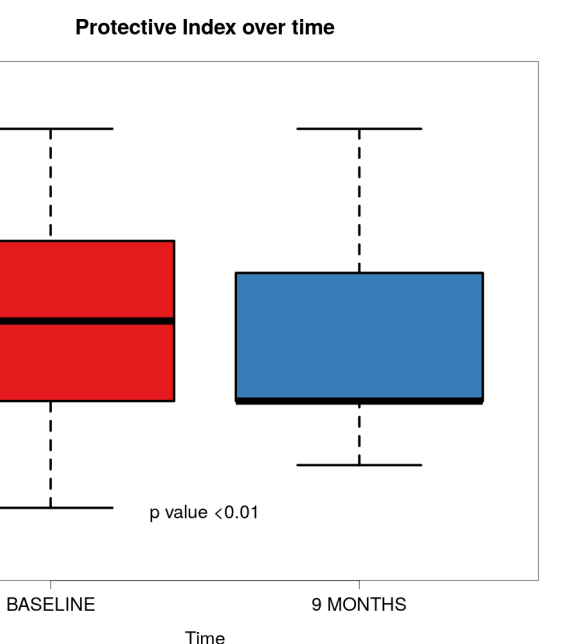


Health Index over time



EQ5D-5L QoL over time



	Baseline		Follow up		Protective Index (PI)	Baseline		Follow up	
	Total N = 224	P	Total N = 224	P		Total N = 224	P	Total N = 224	P
Median step	0.25 (0.11)	0.88	0.27 (0.1)	0.23	Education	0.25 (0.44)	<0.01	0.21 (0.41)	<0.01
SPPB	0.33 (0.08)	<0.01	0.34 (0.06)	<0.01	Profession	0.48 (0.5)	<0.01	0.3 (0.46)	<0.01
Locomotion	0.3 (0.08)	0.21	0.32 (0.07)	0.81	Income	0.33 (0.47)	0.81	0.19 (0.39)	<0.01
Eating behaviour	0.56 (0.24)	<0.01	0.62 (0.22)	<0.01	Marital status	0.32 (0.47)	<0.01	0.29 (0.45)	<0.01
Median sleep hours	0.59 (0.17)	0.08	0.63 (0.13)	0.1	Living alone	0.46 (0.5)	<0.01	0.38 (0.49)	<0.01
Sleep quality	0.53 (0.21)	<0.01	0.58 (0.25)	0.95	Exercise	0.95 (0.23)	0.15	0.89 (0.32)	0.03
Sexual function	0.44 (0.28)	<0.01	0.52 (0.27)	<0.01	Alcohol use	0.58 (0.5)	<0.01	0.6 (0.49)	<0.01
Hand grip force	0.5 (0.15)	<0.01	0.5 (0.15)	<0.01	Smoking	0.9 (0.3)	<0.01	0.93 (0.26)	<0.01
Vitality	0.5 (0.14)	<0.01	0.53 (0.15)	<0.01	Intra-Venous Drug Use (IVDU)	0.95 (0.22)	<0.01	0.95 (0.23)	<0.01
Hearing	0.93 (0.16)	0.91	0.95 (0.13)	0.661	Nationality	0.46 (0.59)	<0.01	0.58 (0.63)	<0.01
Sensory	0.07 (0.16)	0.91	0.05 (0.13)	0.66	PI	0.49 (0.2)	<0.01	0.44 (0.18)	<0.01
Neurocognitive	0.6 (0.2)	<0.01	0.62 (0.22)	<0.01	Intrinsic Capacity over time				
GDS	0.17 (0-0.5)	<0.01	0.17 (0-0.5)	0.1					
Cognition	0.36 (0.15)	<0.01	0.39 (0.2)	<0.01	Protective Index over time				
CES-D	0.77 (0.19)	0.01	0.75 (0.2)	0.43					
Stress	0.57 (0.26)	<0.01	0.49 (0.27)	<0.01					
Psychosocial	0.68 (0.19)	<0.01	0.62 (0.22)	<0.01					
IC	0.43 (0.07)	<0.01	0.43 (0.09)	0.01					

- ## Conclusions
- This study emphasises the need of a multidimensional evaluation of HIV disease and health status of OALWH collecting disease-centered and functional-centered constructs both at the clinic and using a IoMT framework.
 - MySAwH offers insight regarding the paradigm shift from disease to functional ability assessment in OALWH.
 - We observed significant heterogeneity in OALWH recruited in Italy, Australia and China which underline the need to consider in aging assessment different geographical determinants of health including anthropometric and environmental variables.
 - During 9 month follow up interim analyses we did not observed any significant change in FI, HI, IC and we observed an expected worsening of PI (mainly related to professional retirement and higher fragility in family cohesion).
 - Regardless of an increase in non-infectious co-morbidities the non-significant progression of FI can be considered as a positive outcome. These data need to be confirmed at the end of the study (18 months follow up). The presence of a Health Coach that provided information about HI/IC change motivated patients to be personally empowered to improve life style.
 - The key result of this study was the possibility to operationalize Healthy Aging into a IC and PI assessment tool. Measuring Healthy Aging has the potential to substantially modify the way in which clinical practice is conducted focusing on residual wellness rather than a “reactive” identification and treatment of deficits.