



# COMPARATIVE ANALYSIS OF ASSISTIVE TECHNOLOGIES FOR ELDERLY PEOPLE: HOIST/LIFTS

**HOSPITAL AITA MENNI**  
Mikel Tellaeche.  
mtellaeche.aitamenni@hospitalarias.es  
Aloña Tellería y Ane Jiménez.

**LKS**  
José M. Gorroñoigoitia, Ángel Callen.

**Residencia Txurdinagabbarri**  
Mertxe Sagarna, María Muñoz,  
Nagore Aguirregabiria, Arantza Villa,  
Silvia Díez, Elena Castro.

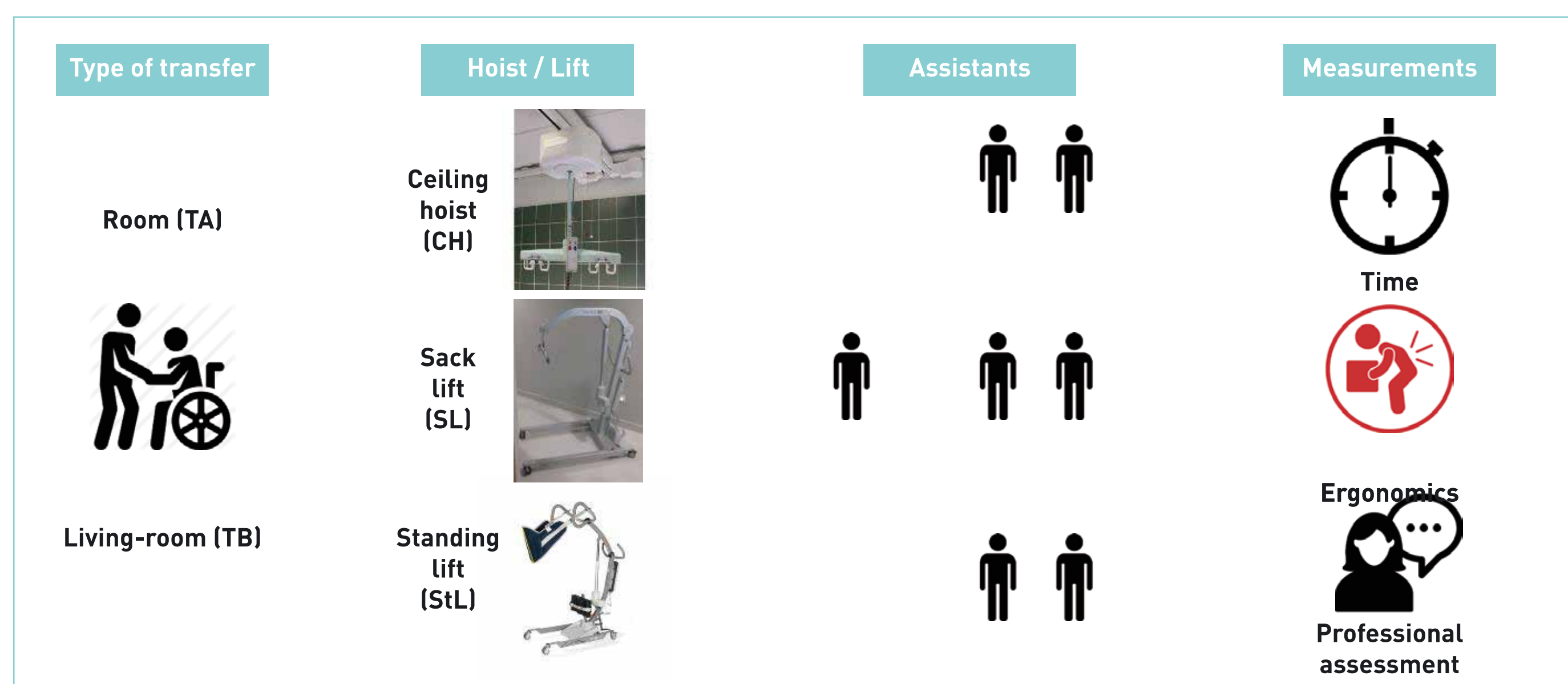
**ERREKA-ADOM**  
Jabi Odriozola.

**Residencia J.M. Barandiaran**  
Nora Ibarra, Nagore Mardaras, Elisa García, Idoia Zelaia, Irene Garrido, Valentina Fernández.

## GOALS

Define the length of operation and the postural risk in transfers with the use of roof lifts and different floor lifts for users depending on the user profile.

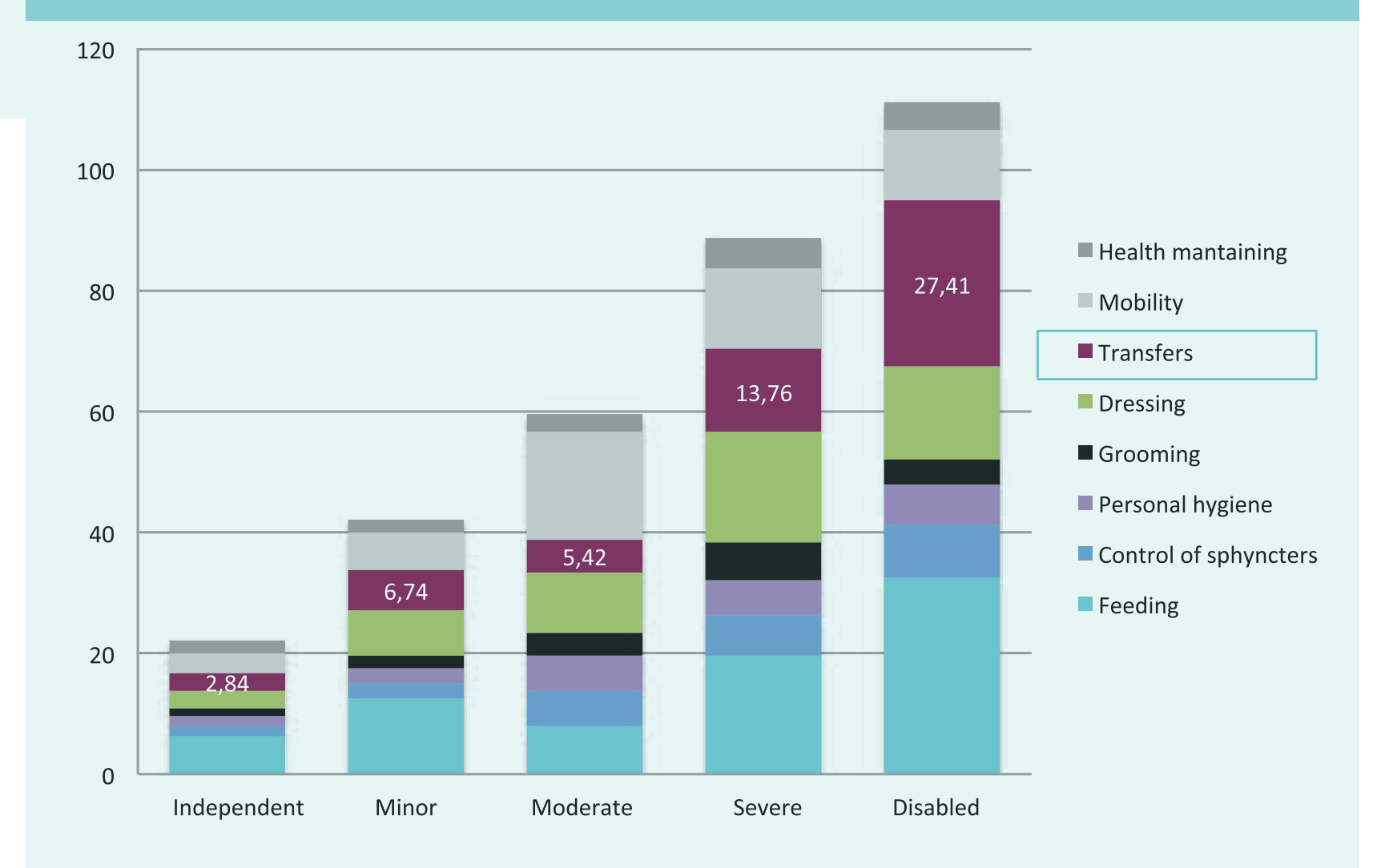
- Adapt the facilities with the safest and most efficient technical means according to the user and type of transfer to be done.
- Minimize the ergonomic risks of professionals.
- Improve the productivity of the clinical assistant professionals.
- Optimize resource planning.
- Obtain a comparative technical document between the two transfer systems.



## BACKGROUND

- Efectiveness of overhead lifting devices in reducing the risk of injury to care staff in extended care facilities (2005, C. Engst, Canada)
- Evaluation of ceiling lifts: Transfer time, patient comfort and staff perceptions (2008, Elsevier Ltd, Canada)
- MORETAG study by Lares (2017)
- Lantegi Batuak (Bizkaia Provincial Council) (2017)

Daily time (minutes) of nursing assistant according to resident typology

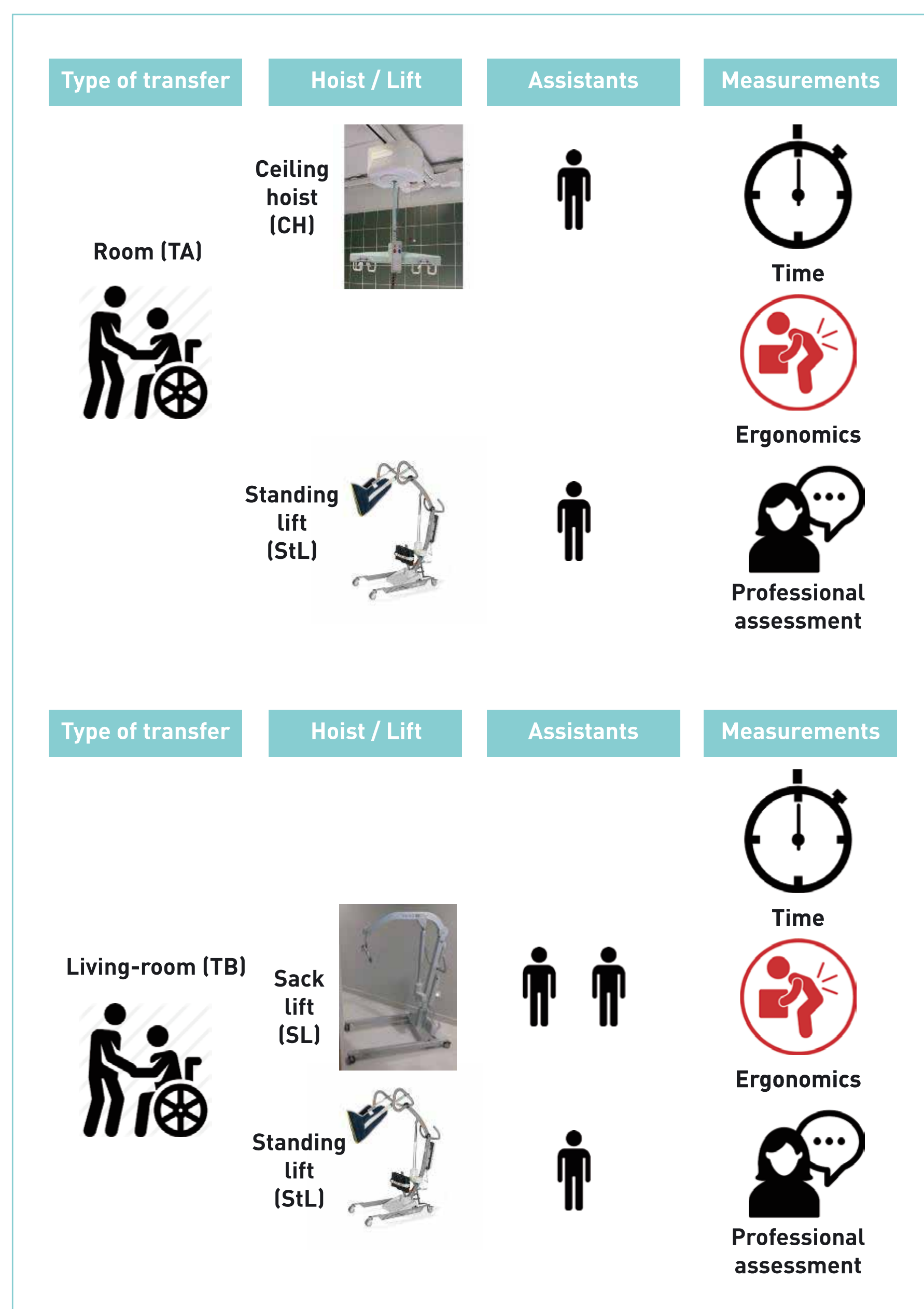


## SAMPLE

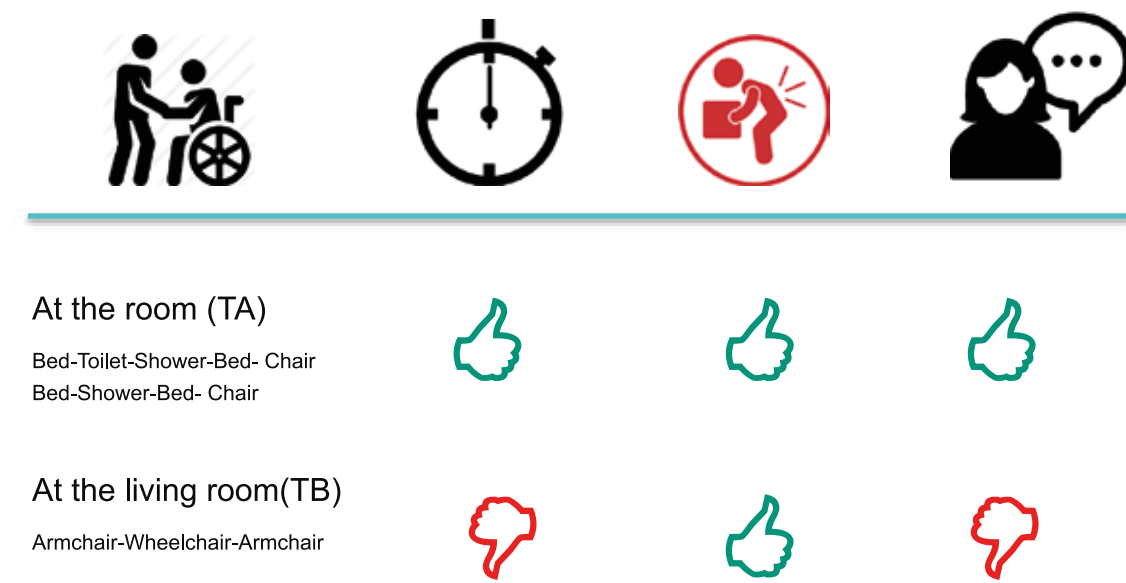
Txurdinagabbarri nursing home Bilbao (Bizkaia) 64 mensurations

J. M. Barandiaran nursing home Durango (Bizkaia) 64 mensurations

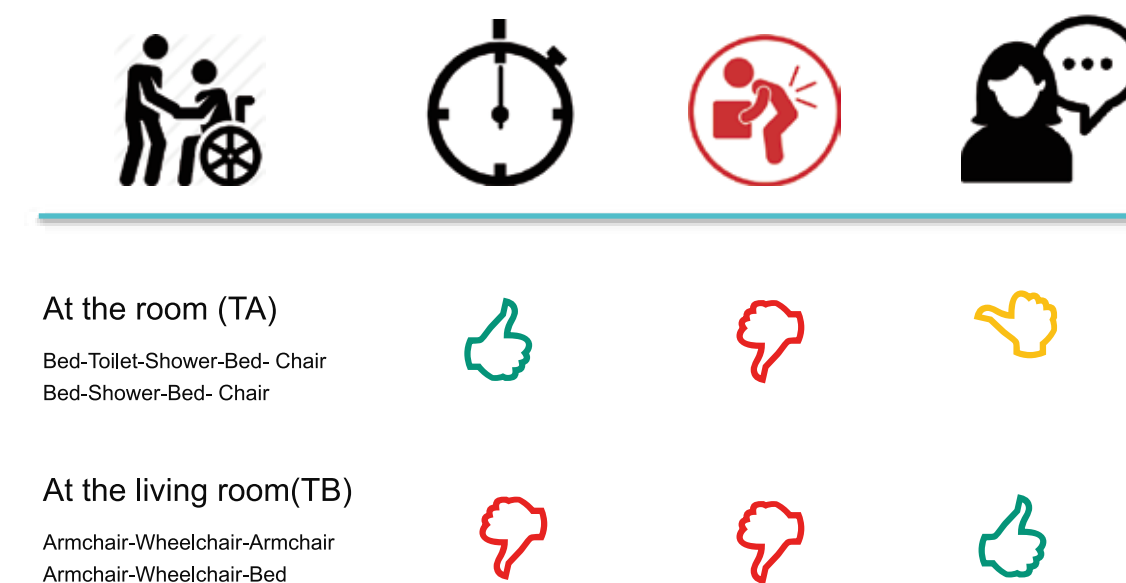
## RESULTS



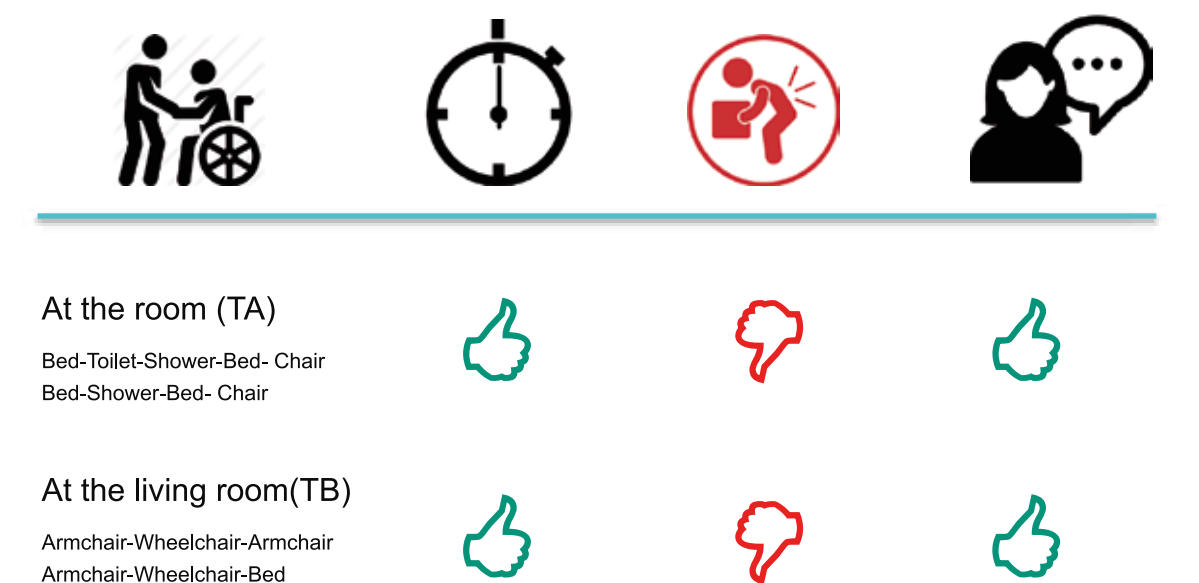
### CEILING HOIST



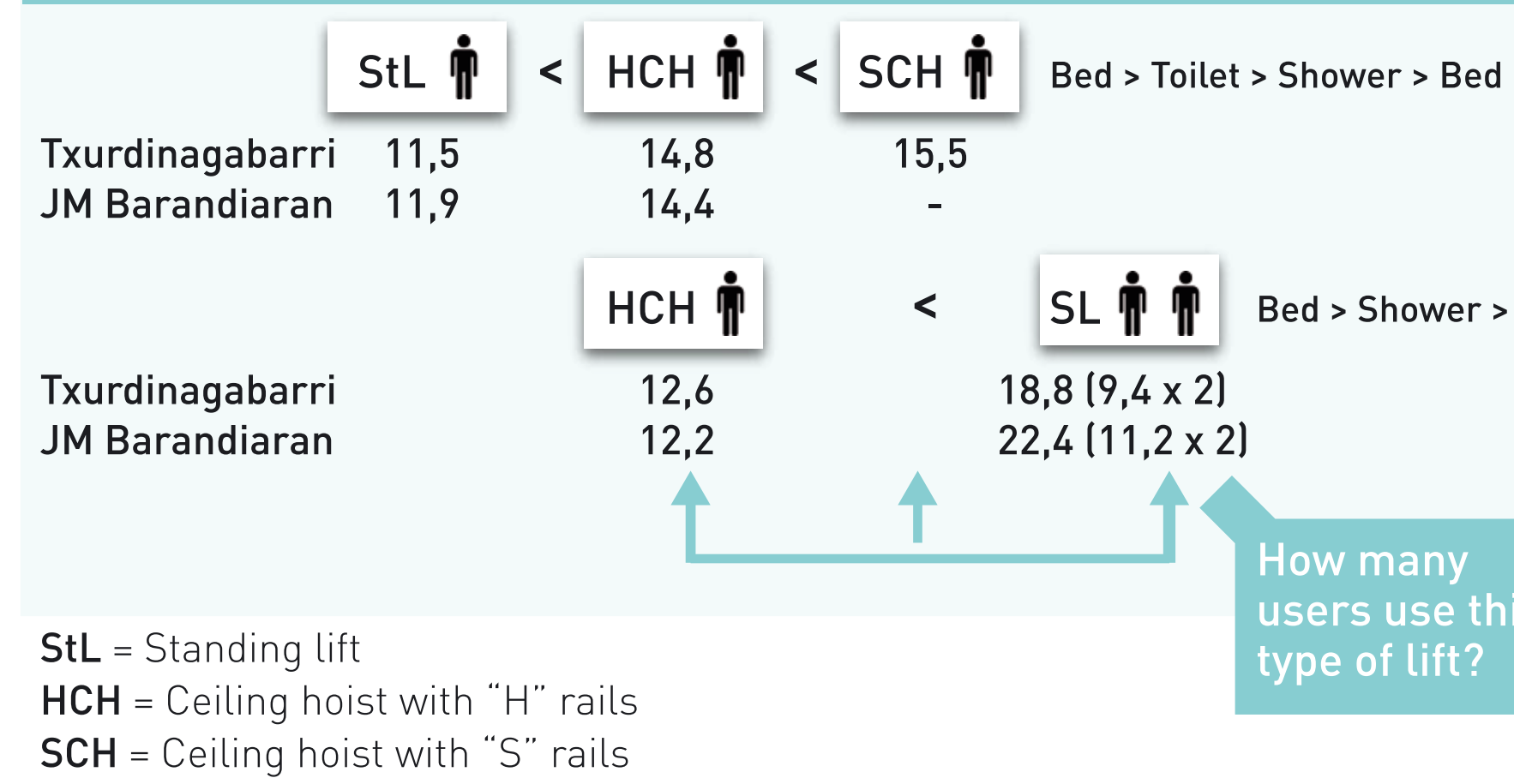
### SACK LIFT / STORK



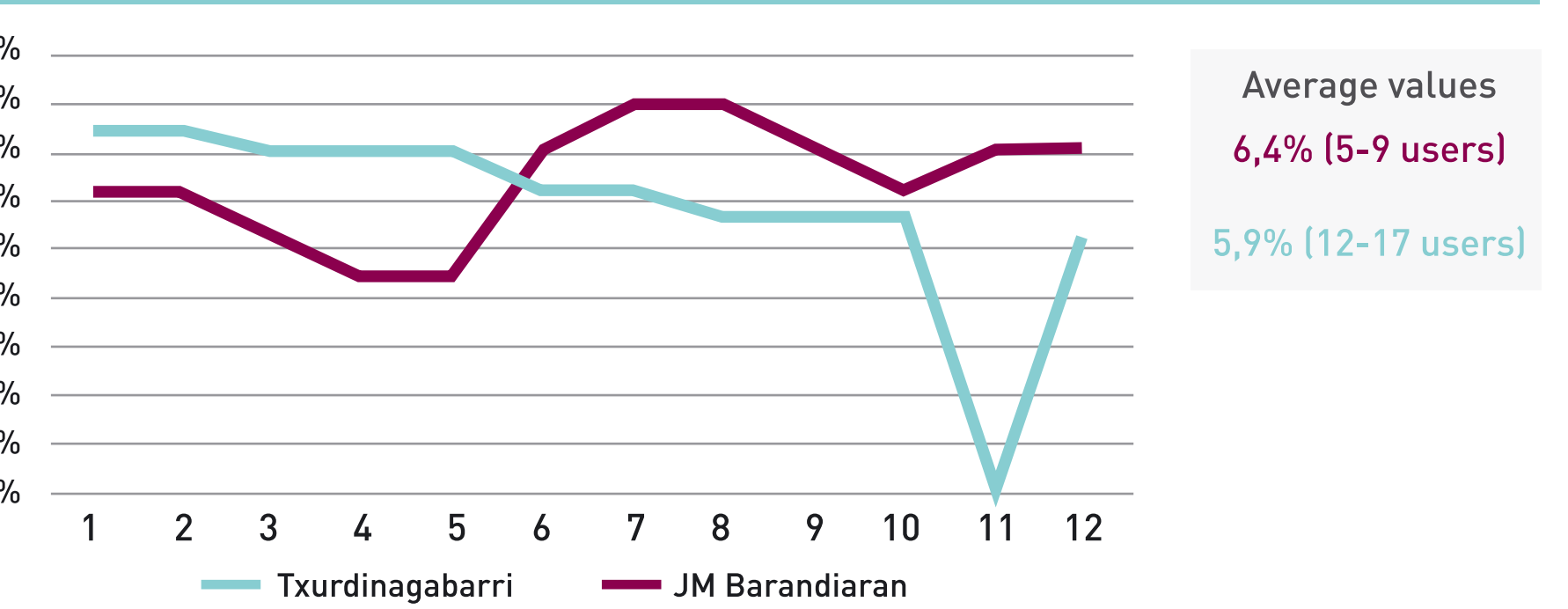
### STANDING LIFT



TIMES IN ROOM (TA) with different lifts and # of assistants



USERS OF SACK LIFT / STORK (2018)



Length comparison (base=100)				R.E.B.A.
Transfer	Hoist	1 assistant	2 assistants	Risk 3
TA	CH	100	75	0%
	SL	105	80	15%
	StL	80	65	7%
TB	CH	100	60	0%
	SL	100	60	6%
	StL	70	50	12%

R.E.B.A = Rapid Entire Body Assessment

### POSTURAL RISK LEVEL

- Negligible
- Low level risk. No need for improvements on the workplace.
- Mid level risk. Improvements on the workplace are recommended.
- High level risk. Improvements are needed.
- Very high risk. Immediate ergonomic improvements are required.

- The use of a ceiling lift in the living room transfer (TB) does not provide substantial benefits.
- The use of ceiling lift in room transfer (TA) allows hygiene with shower to users who could only get hygienized in bed with a sack lift.
- Most users can be transferred with ceiling lift by one assistant.
- The user feels more comfortable in the ceiling lift than in the sack lift.
- The sack lift only allows hygiene (toilet) in bed and requires two assistants to carry out the transfer.
- Ergonomically the sack lift is worse than the ceiling lift.
- The sack lift requires more room and bathroom space to maneuver.
- The standing lift is the fastest and requires only one assistant in most cases.

- The design and dimensions of the room determine transfer times.
- The smaller the room size, the greater difficulty of handling floor lifts.
- The larger the room size, the longer the transfer time in the case of lifts, depending on where the lifts rest (loading area).
- Both statements have been verified according to the different sizes and models.
- The ceiling lift with H-shaped rails is better suited to the distribution of the room (single or double) than the linear or S-shaped ceiling lift.
- In new constructions or renovations, it is recommended to have the bed and the bathroom aligned.
- The inventory of ground lifts (standing and sack) determines the organization of work and the losses of time in displacements to pick them to be used.