

The Development of a Self-Propel Wheelchair Skills Test

Adam Reuben – Rehabilitation Engineer - Birmingham Wheelchair Service
 Birmingham Wheelchair Service Clinical Team
 - Adult and Specialist Rehabilitation Service



Birmingham
 Community Healthcare
 NHS Foundation Trust

Background

The service utilises prescription guidelines, including a decision tree, to support clinical decision making for equipment (see figure 1 and 2). However, there was no objective measure that supported clinical reasoning around when to move to a more configurable wheelchair. This was often requested by users who felt that a lighter weight chair would be easier to self-propel without them understanding the potential risk.

Aims and Objectives

The aim was to provide an objective measure to support clinical reasoning, linked to the prescription guidelines and the decision-making tree. These decisions are important to optimise the user's ability to self-propel, whilst maintaining safety. It also provides a baseline of their self-propelling skills with targeted goals to support their progression.

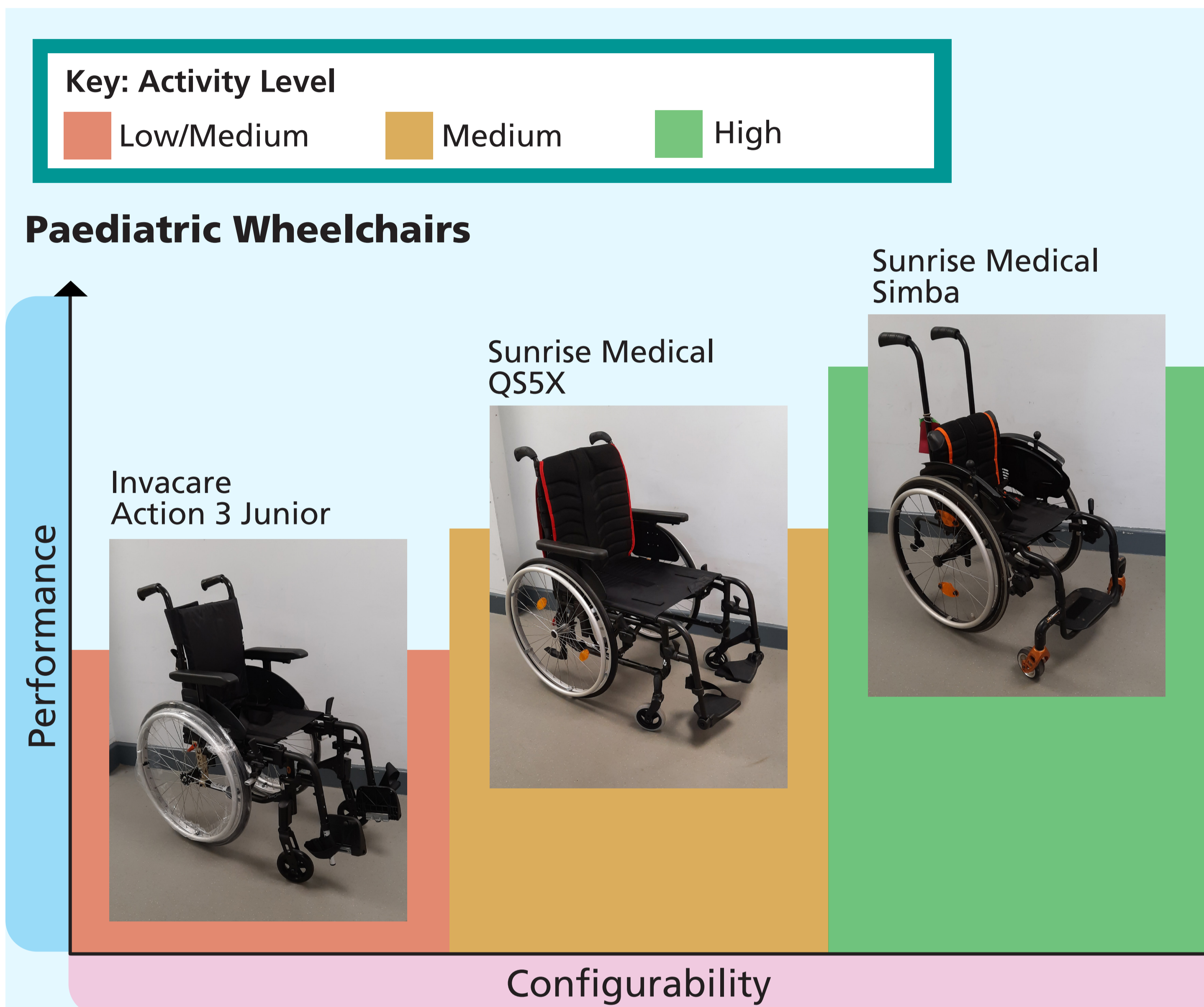


Figure 1 – Manual Wheelchair Comparison Decision Tree

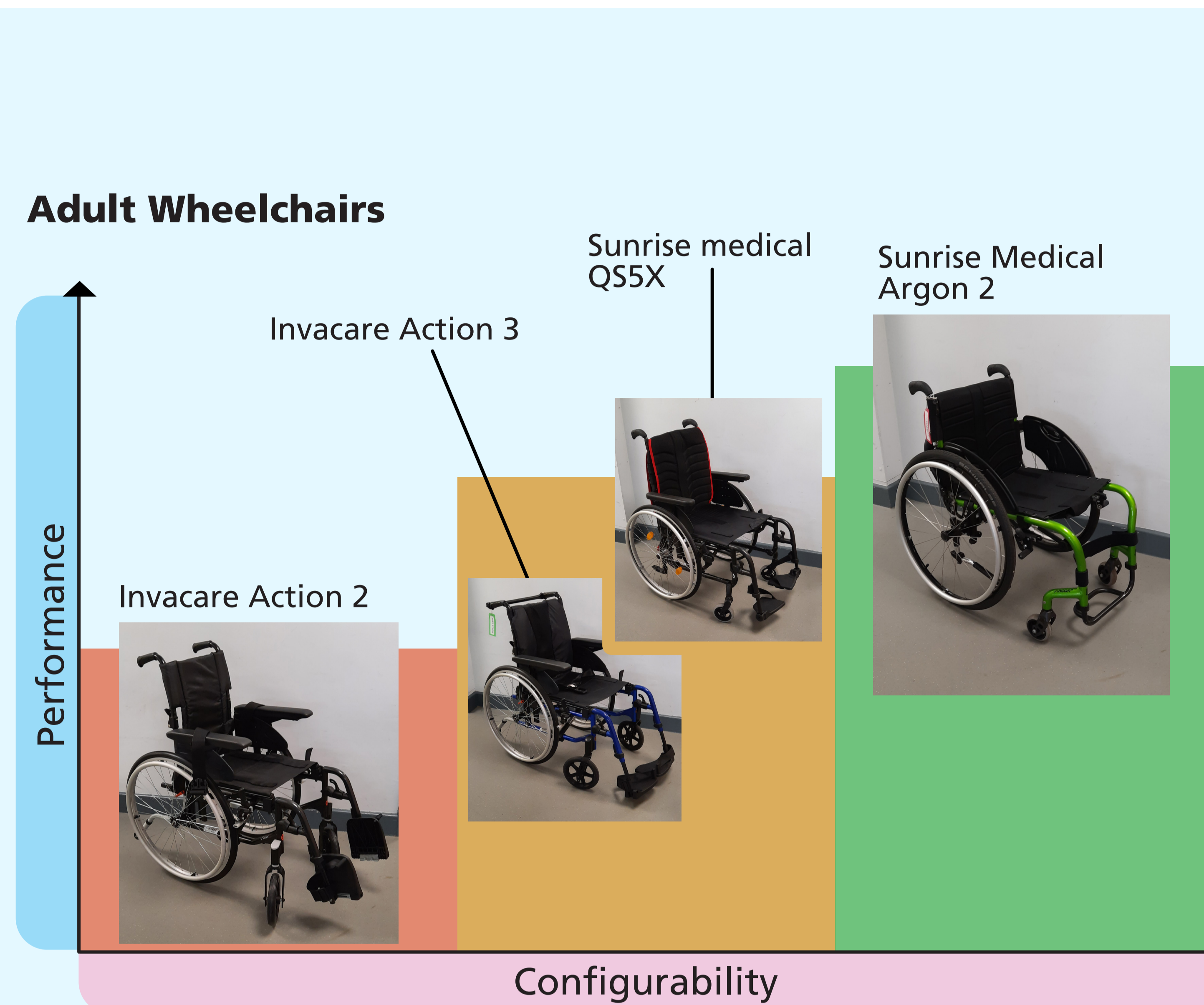


Figure 2 – Manual Wheelchair Comparison Decision Tree

Wheelchair Skills Assessment

Individual Skill	Yes/No	
Beginner		
1	Rolls forward	
2	Rolls backward	
3	Turns 180° in static position	
4	Turns 90° while moving forward	
5	Turns 90° while moving backward	
6	Able to reach out for objects	
7	Demonstrate safe controlled stop	
8	Performs safe transfer	
Intermediate		
9	Ascends slight incline	
10	Descends slight incline	
11	Ascends steep incline	
12	Descends steep incline	
13	Manoeuvre over obstacle/threshold	
Advanced		
14	Ascends low kerb (1 inch)	
15	Descends low kerb (1 inch)	
16	Ascends high kerb (2 inch)	
17	Descends high kerb (2 inch)	
18	Performs stationary wheelie	
19	Turns whilst in a wheelie position	
20	Rolls forward and backward in wheelie position	

Figure 3 – Detailed Wheelchair Skills Test Template

Decision Tree

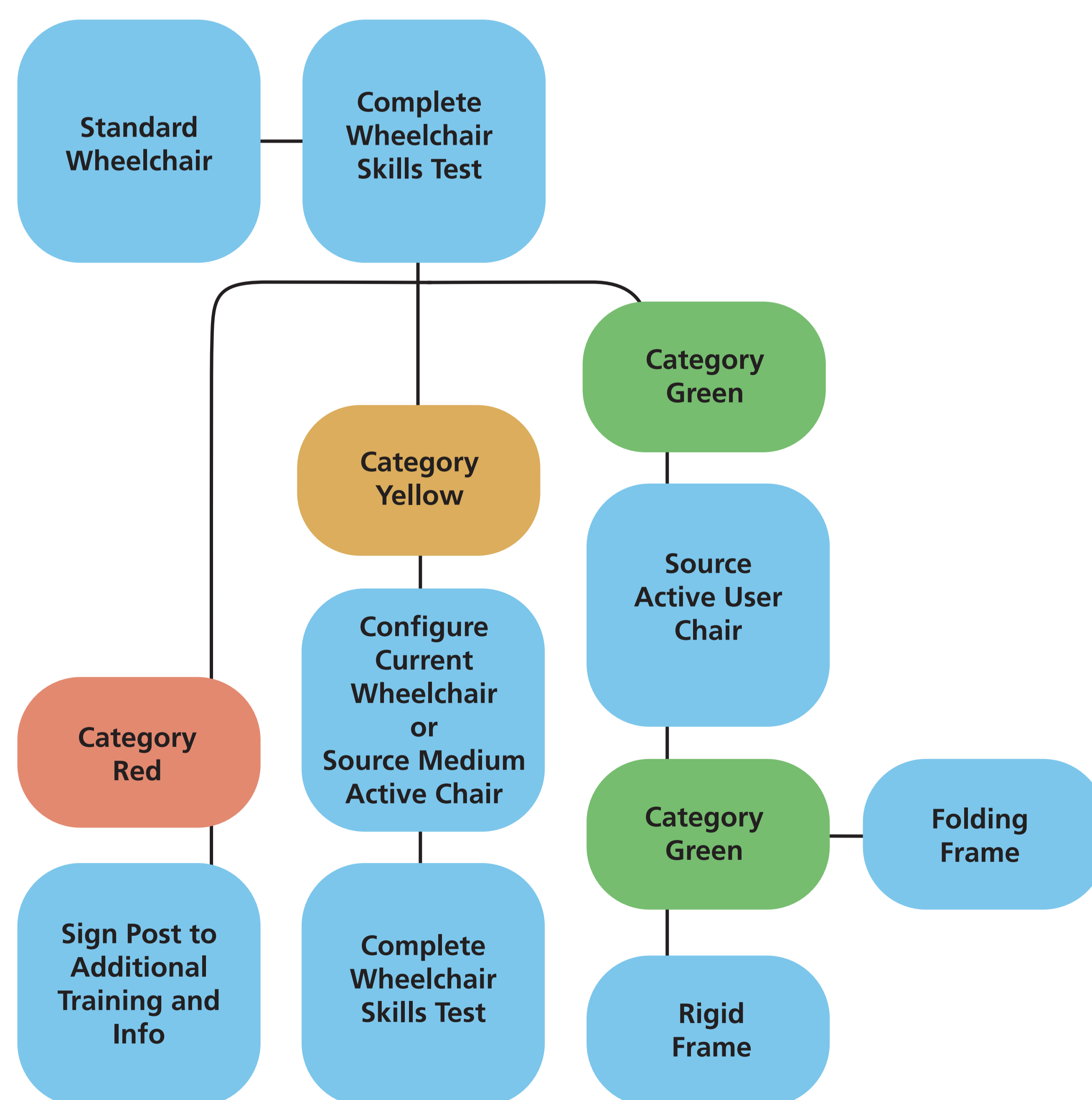


Figure 4 – Flow Chart Explaining the Wheelchair Skills Process

Conclusion

The aim was to provide an objective measure to support clinical reasoning, linked to the prescription guidelines and the decision-making tree. These decisions are important to optimise the user's ability to self-propel, whilst maintaining safety. It also provides a baseline of their self-propelling skills with targeted goals to support their progression.