

The Zipie logo features the word "zipie" in a white, lowercase, sans-serif font. A white swoosh arches over the letters "i" and "p".

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# Paediatric Wheelchair PRESCRIPTIVE GUIDE

INCLUDING USER RECOMMENDATIONS



## Prescriptive Guide

# INTRODUCTION

**This manual was developed to assist therapists in choosing an appropriate wheelchair frame for their paediatric clients.**

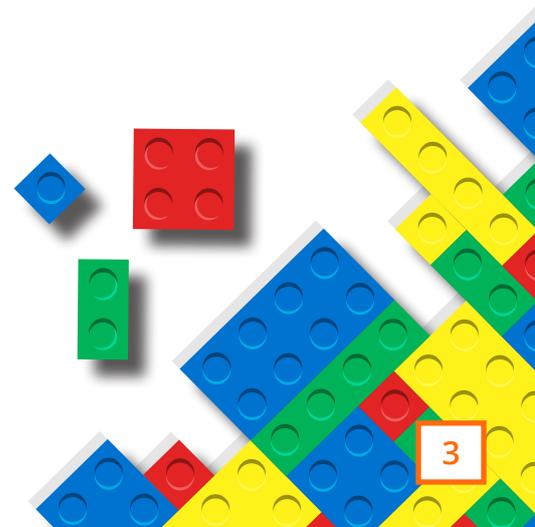
The aims of this manual are:

- To provide a common resource for therapists providing manual wheelchair assessments and advice to paediatric clients and their families.
- To improve consistency of approach toward advice provided to paediatric clients and their families.
- To provide guidance regarding selection and configuration of Sunrise Zippie branded products.
- To empower therapists with the knowledge and resources to recommend Sunrise Zippie branded products with confidence.
- To provide a common resource for therapists providing family education in use of paediatric wheelchairs.



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# Important Information to Gather During the EVALUATION PROCESS



1. Identify needs (postural, skin protection, functional needs, and goals)
2. Identify environmental elements which provide barriers
3. Examine the technology available

## INITIAL NEEDS SURVEY:

**Goals / History** - goals and expectations, current mobility, medical history

**Client information** – diagnosis, associated conditions, medication, surgical plans/history

**Special needs:** Respiratory / GI equipment/ orthotics, other AT

**Support network** – family, carers, school etc

**Physical** - posture, ROM, tone, spasticity, functional skills, sensation/skin integrity, resulting seating needs

**Sensory / Communication** - vision, hearing, speech, augmented communication

**Cognitive / Perceptual / Behavioral / Psychological:** integration/retain information, judgment

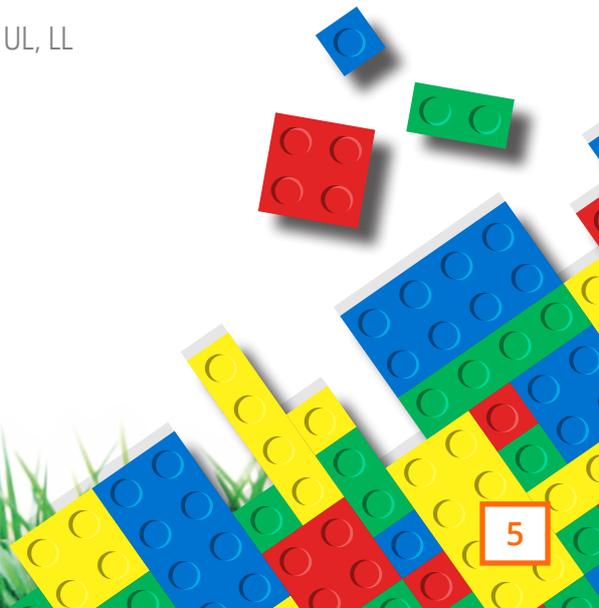
**Home** – accessibility, elements that create barriers

**Other environments** - work, school, leisure: access, terrain

**Transport** - type, access, restrictions

## MAT EVALUATION INFORMATION REQUIRED:

- Body measurements
- Joint passive range of movement
- Muscle tone, primitive reflexes, motor control, control of trunk, head, UL, LL
- Postural observations
- Postural support components required





# Clinical Selection Criteria

## WHEELCHAIR TYPE

### Dynamic Tilt in Space Wheelchair

- Cannot independently change position
  - >> Risk for skin breakdown
  - >> Compromised sitting tolerance
- Cannot maintain pelvic/trunk/head position against gravity for prolonged periods
- Requires re-orientation of gravity for proper postural support
- Risk of respiratory complications
- Risk of digestive/swallowing complications
- Risk for postural hypotension

### PROPER WHEELCHAIR SET UP:

- Appropriate STFH for transfers, environment access
- Appropriate wheel size for terrain, environment navigation
  - >> 24" - self-propulsion
  - >> 16" - good indoor and outdoor navigation
  - >> 12" - offers best maneuverability for indoors
- Appropriate caster for terrain, environment navigation
  - >> 8x2" - outdoor and more rural environments
  - >> 6x1.5" - good indoor and outdoor navigation
  - >> 5x1.5" - offers best maneuverability and indoor, flat surface use
- Safety Items
  - >> Hub locks: positive lock on wheel rotation; safest
  - >> Foot locks: easiest engagement
  - >> Height adjustable stroller handle: ergonomic attendant pushing
- Select Transit Option if client travels in a motorized vehicle
- Optimize tilt range:
  - >> 40 degrees for posture assistance
  - >> 55 degrees for skin protection



# Dynamic Tilt in Space Wheelchair



## IRIS RIGID FRAME

For paediatric users under 135 kgs who need a tilt in space chair as described in the Clinical Selection Criteria **AND:**

- Is dependent for mobility
- Has complex postural needs that requires re-orientation of gravity
- Has complex postural needs that require precise support and positional components.
- Need adjustability and adaptability within the frame
- Require growth in the frame
- Transport the client in the chair

### Iris Rigid Features

- IRIS frame offers seat pan and seat rail that are accepting of complex postural supports and seating systems
- IRIS frame offers back canes that are accepting of complex postural supports and seating systems

### Contraindications:

- Client that shows increase in tone and abnormal reflexes when in the tilted position

## IRIS FOLDING FRAME

For paediatric users under 135 kgs who need a tilt in space chair as described in the Clinical Selection Criteria **AND:**

- Is dependent for mobility
- Has complex postural needs that requires re-orientation of gravity
- Has complex postural needs that require precise supports and positional components.
- Need adjustability and adaptability within the frame
- Require growth in the frame
- Transfer the client out of the wheelchair and into a car seat for travel
- Have space limitations during transportation that requires folding frame

### Iris Folding Features

- IRIS folding frame offer seat pan and seat rail that are accepting of complex postural supports and seating systems
- IRIS folding frame offers back canes that are accepting of complex postural supports and seating systems

### Contraindications:

- Client that shows increase in tone and abnormal reflexes when in the tilted position





# Clinical Selection Criteria

## WHEELCHAIR TYPE

### Positional Wheelchair

- Can independently change position or otherwise skin integrity is protected
- Can maintain pelvic/trunk/head position with adequate configuration of wheelchair and seating components
- May have moderate/significant postural support requirements
- Functional skills may change
- Change in posture / size is anticipated
- Client may be dependent, assisted or independent with mobility

### PROPER WHEELCHAIR SET UP:

- Appropriate STFH for transfers, environment
- Appropriate wheel size for terrain, environment navigation
  - >> 20-24" - self-propulsion - depending on size and seat height requirements.
  - >> 12,16" - transit (dependent mobility)
- Appropriate caster size for terrain, environment navigation
  - >> 6x1.5" - outdoor and more rural environments
  - >> 5x1.5" - good indoor and outdoor navigation
  - >> 4" - good wheelchair skills for navigating uneven terrains
- Safety Items
  - >> Hub locks: positive lock on wheel rotation; safest
  - >> Foot locks: easiest engagement
  - >> Height Adjustable Stroller Handle: safe assistance with outdoor mobility or longer distances.
- Select transit option if client sits in wheelchair during vehicle travel

## XCAPE FOLDING FRAME

For paediatric users under 75 kgs who need a positional wheelchair as described in the Clinical Selection Criteria

### **AND:**

- May be dependent, semi or independent in mobility with GMFCS  $\leq 3$  with fair upper body control and balance.
- May have moderate to complex postural needs that require precise supports and positional components.
- Need adjustability and adaptability within the frame
- Need adjustability and adaptability within the frame
- Require growth in the frame or change in frame size
- Client may transfer out of the chair and into a car seat for travel
- Have space limitations during transportation that requires folding frame
- Client may be transported in the wheelchair

### **Xcape Features:**

- Xcape frame offers back canes and seat rail that are accepting of complex postural supports and seating systems
- Xcape offers frame configurations which offer postural support and postural management
- Seat width and depth growth
- Back height and angle
- Rear wheel position for optimal stability
- Rear wheel position for potential self-propulsion

### **Contraindications:**

- Client that has high risk of pressure injury, is unable to perform weight shift and will need to sit in the chair for  $>2$  hours





# Clinical Selection Criteria

## WHEELCHAIR TYPE

### Active Wheelchair

- Can independently change position
- Has good trunk strength
- Posture is stable and not anticipated to change dramatically
- Has low postural support requirements
- Does not need supportive seating
- Functional skills are stable or improving
- Client typically is independent with mobility

#### PROPER WHEELCHAIR SET UP:

- Appropriate front seat height for transfers, environment
- Appropriate seat slope to offer ergonomic propulsion
- Appropriate seat slope for postural stability
- Appropriate wheel for terrain, environment navigation
  - >> 20-24" self-propulsion – depending on wheelchair size and seat height requirements
  - >> No attendant propelled / transit option as is active chair
- Appropriate caster for terrain, environment navigation
  - >> 6x1.5" good outdoor navigation
  - >> 5x1.5" offers best maneuverability and indoor use
  - >> 3 or 4" best for indoor, client has good wheelchair skills

## ZONE RIGID FRAME

For paediatric users under 75 kgs who need an active wheelchair as described in the Clinical Selection Criteria

### **AND:**

- Is typically independent in mobility with GMFCS  $\leq 3$  with fair upper body control and balance. UL strength  $\geq 3/5$
- Has low postural control needs that can be managed by seat slope and back angle
- Need adjustability and adaptability within the rear wheel position
- Client transfers out of the chair and into a car seat for travel
- Need light weight frame with removable wheels as client/caregiver independently loads the wheelchair into car for travel
- Zone should not be used with clients with high postural needs or clients that will have complex seating systems

### **Zone Features**

- Frame offers seat to back angle adjustment & seat slope selection to promote postural stability & ergonomic propulsion
- Offers rear wheel configurations which promotes independent mobility and ergonomic propulsion
- Zone does not offer a seat rail accepting of complex postural components as such is not accepting of supportive seating
- Zone offers rear wheel position adjustability to optimize maneuverability
- Zone offers rear wheel position adjustability for ergonomic propulsion

### **Contraindications:**

- Client that has high risk of pressure injury, is unable to perform weight shift and will need to sit in the chair for  $>2$  hours
- Client that needs back support that supports with 3 dimensional shaping such as molded seating systems or custom configured seating systems
- Client has significant upper body and limb disability due to spasticity dystonia and/or poor muscle control



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# Paediatric User

# RECOMMENDATIONS



## ENVIRONMENTAL CONDITIONS

Use extra care if you must use your chair on a wet or slick surface. If you are in doubt, ask for help. Contact with water or excess moisture may cause your chair to rust or corrode. This could cause your chair to fail. Do not use your chair in a shower, pool or other body of water. The chair tubing and parts are not water-tight and may rust or corrode from the inside.

## UNEVEN TERRAIN

Your chair is designed for use on firm, even surfaces such as concrete, asphalt and indoor floors and carpeting. Try not to operate your chair in sand, loose soil or over rough terrain. This may damage wheels or axles, or loosen fasteners of your chair.

## CENTER OF BALANCE

The point where this chair will tip forward, back, or to the side depends on its center of balance and stability. How your chair is set up and the options you select may affect the risk of a fall or tip-over.

The most important adjustment is the position of the rear wheels. The more you move the rear wheels forward, the more tippy the wheelchair becomes.

The center of balance can also be affected by any change in the set-up of your chair or a change in your body posture or weight distribution. Riding your chair on a ramp or slope, adding a back pack or carrying groceries can also change the stability.

## OBSTACLES

Obstacles and potholes or broken pavement can damage your chair and may cause a fall, tip-over or loss of control. To avoid accidents, keep a lookout for danger – scan the area well ahead of your chair as you ride.

Inspect your home or places you commonly visit for dangers: remove or cover threshold strips between rooms, install ramps at entry or exit doors as required.

To help correct your center of balance: lean your upper body FORWARD slightly as you go UP over an obstacle. Press your upper body BACKWARD as you go DOWN from a higher to a lower level. If your chair has anti-tip tubes, lock them in place before you go UP over an obstacle. Keep both of your hands on the handrims as you go over an obstacle.

## REACHING OR LEANING

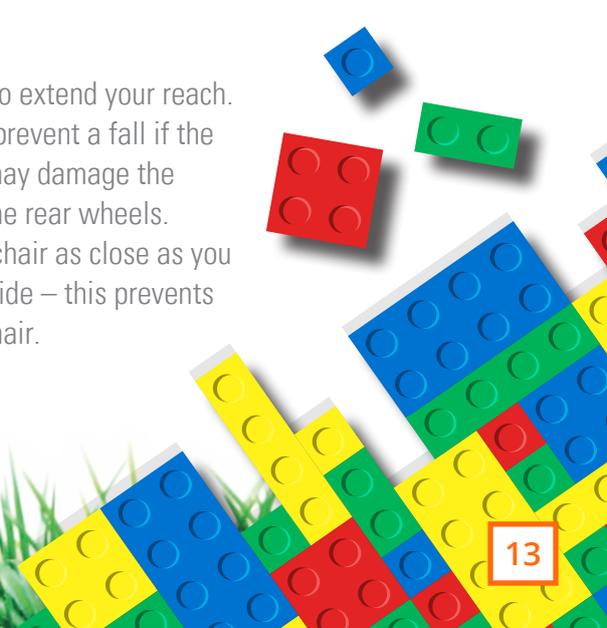
If you reach or lean, it will affect the center of balance of your chair.

This may cause you to tip over. When in doubt, ask for help or use a device to extend your reach.

Avoid reaching with both hands as you may not be able to catch yourself to prevent a fall if the chair tips. Avoiding reaching or leaning over the top of the seat back. This may damage the backrest tubes and cause you to fall. If you must reach or lean do not lock the rear wheels.

This makes tip-over more likely. To reduce the need for leaning, move your chair as close as you can to the object you wish to reach. Pick up objects from the floor from the side – this prevents forward tipping. A caster leading position will create a more stable wheelchair.

For this position, move your wheelchair past the object.



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# Paediatric User

## RECOMMENDATIONS



### **RAMPS, SLOPES & SIDE SLOPES**

Riding on a slope, which includes a ramp or side hill, will change the center of balance of your chair. Your chair is less stable when it is at an angle. Anti-tip tubes may not prevent a fall or tip-over. Do not use your chair on a slope steeper than 10 degrees. Avoiding changing direction on a slope. Always stay in the CENTER of the ramp. Make sure the ramp is wide enough that you are not at risk that a wheel may fall over the edge. Do not stop on a steep slope. If you stop, you may lose control of your chair.

Lean or press your body UPHILL. This will help adjust for the change in the center of balance caused by the slope or side slope. Keep pressure on the handrims to control your speed on the down slope. If you go too fast you may lose control.

### **TRANSFER**

Have someone help you until you know how to do a safe transfer on your own.

Lock the rear wheels before you transfer. This keeps the rear wheels from rolling.

Move your chair as close as you can to the surface to which you are transferring. Rotate the front casters to the leading positioning. This will make the chair more stable.

### **CURBS & STEPS**

Do not try to climb or descend a curb or step alone UNLESS you are a skilled rider of this chair. You will need to have good wheelie skills. Approach the curb straight on. If you attempt to climb or descend at an angle, a fall or tip-over is more likely. Be aware that the impact of dropping down from a curb or step can damage your chair or loosen fasteners.

### **ASSISTANCE WITH CLIMBING STAIRS**

Use at least two assistances to move a chair and rider upstairs.

Move the chair and rider BACKWARD up the stairs. The person at the rear is in control. He or she tilts the chair back to its balance point.

A second assistant at the front firmly grasps a non-detachable part of the front frame and lifts the chair up and over one stair at a time. Repeat for each stair, until you reach the landing.

Use at least two assistances to move a chair and rider downstairs.

Move the chair and rider facing forward down the stairs. The person at the front is in control. He or she tilts the chair back to its balance point.

A second assistant at the back firmly grasps a non-detachable part of the front frame and eases the chair down one stair at a time. Repeat for each stair, until you reach the landing.

### **MAINTENANCE**

Inspect and maintain this chair as strictly per the maintenance chart located in the maintenance section of your chair's owner's manual. If you detect a possible problem, make sure you contact your service agent before using the chair. Follow the service recommendations by having a complete inspection and safety check by an authorised supplier as per the service schedule.





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