

# Mobility Aids For Children with Cerebral Palsy

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Children with cerebral palsy are often prescribed Mobility & Seating Systems (MSS).

## WHY ?

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### Aims:

- to assist in daily activities
- to improve posture and general health
- to prevent muscular-skeletal complication
- to prevent aspiration

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### The Challenges in District/Rural Malaysia

- Not readily available - need to be flown/shipped in
- Costly (at least RM4000-8000)
  - 38% of Malaysian family has monthly income < RM3000<sup>1</sup>
- Adult wheel chairs
- Imported systems may not suit the child
  - size, child grows, material/weather
- Less than 5 between 1998-2004 (150+ children)
- Sarawak - mix of urban, suburban and rural areas

<sup>1</sup> 2007 Household Income & Facilities Census by the Department of Statistics Malaysia. Retrieved from article by Pauline Push, Half of Malaysian households earn below RM3,000 a month. The Edge, 10 July 2008.  
[http://www.theedgedaily.com/cms/content.asp?id=com.fms.cms.article.Article\\_a703730-cb73cd3a-1b092820-e338574e](http://www.theedgedaily.com/cms/content.asp?id=com.fms.cms.article.Article_a703730-cb73cd3a-1b092820-e338574e)

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### MSS Project in Sibiu, Sarawak .....



..... started with  
a person  
with dedicated and kind heart

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PERSONALITY

### Healing carpenter

By Philip Wong

**Mr Tatsumi Kondo**  
**龙巴近藤**  
(18 April 1965 - 8th January 2010)

**Volunteer physiotherapist under Japan International Cooperation Agency (JICA) 1996 - 2000**

Mr Kondo, who was born in Japan, came to Sarawak in 1996 to work as a volunteer physiotherapist under JICA. He was known for his dedication and kindness towards the children with cerebral palsy in the region.

He was inspired by children with CP without any systems, lying on the floor. He learnt carpentry for 3 years in Japan. He returned to Sarawak in 2004.

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### Tatsumi Kondo Memorial Workshop

- works with paediatrician & physiotherapist
- transferring skills to employed workers
- using locally available materials:
  - wheel chair, wood, cushion
  - some 2<sup>nd</sup> hand buggy chairs
- subsidized rate by ACSNS, Agape Centre





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### Referral System

LKHMCC receive referral from multi-sources:

- Hospital
- Parents
- School
- NGO (Non Governmental Organization)
- PDK (Pusat Pemulihan Dalam Komuniti)

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### Financial Assessment

LKHMCC Nurses (DHO) + ACSNS Staff (NGO)

- 50% by ACSNS SibU
- 50% by - Parent
  - NGO
  - Donor

\*By installment, if necessary  
\*Sometime, fully paid by JKM/JPA

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### Assessment

- MDT Assessment  
(Pediatrician/Doctor, PT, Nurses, +/-OT)
- Measurement  
(PT, Workers from ACSN)
- Dispenser + Fine-adjustment  
(PT, Workers from ACSN)

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Rehabilitation & Mobility Aids Workshop  
custom-made for the children

### Modified Wheel Chair



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### Modified Wheel Chair

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## Wooden Chair



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## Corner Chair



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## Corner Chair

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Rehabilitation & Mobility Aids Workshop  
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## Buggy Chair



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Rehabilitation & Mobility Aids Workshop  
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## Buggy Chair



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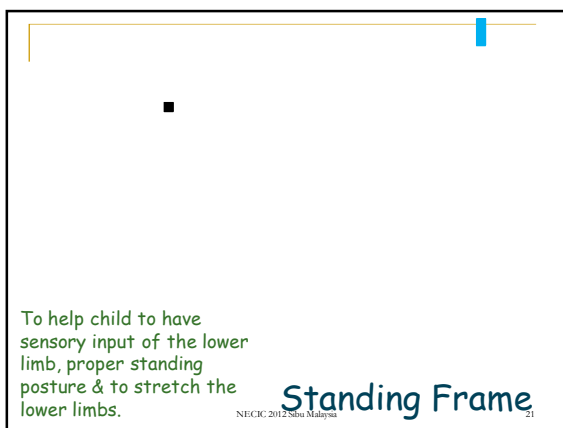
Rehabilitation & Mobility Aids Workshop  
custom-made for the children

- Wooden Chair
- Modified WC
- Buggy Chair

To help the child function better (reading, writing, drawing & eating) in an upright sitting posture.

To go outside the room or house.

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To help the child in standing straight with hands gripping the bar.

## Climbing Bar



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### Use of locally made modified sitting system in district and rural areas of Malaysia

TOH Teck Hock, LING Sui Hui, CHUA Soh Yian, IMOR Jawa, NURHILDA Abdullah, WONG Ai Yung, WONG See Chang

– Accepted for oral presentation: 3<sup>rd</sup> International Cerebral Palsy Conference, Sydney February 2009

#### Use of Locally Made Mobility & Seating Systems for Children with Severe Cerebral Palsy in District and Rural Areas of Malaysia

**Background:** Children with severe cerebral palsy (CP) are often prescribed mobility and seating systems (MSS) to assist in daily activities, posture improvement and prevention of muscular-skeletal complications. However, many families in developing countries, especially those from district and rural areas, do not have easy access to this equipment. In a district paediatric centre in Malaysia, these systems became a reality with the joint effort of a Japanese volunteer physiotherapist, a non-government organisation and a local health team. The systems include wooden chair manufactured using locally available materials and modification of ordinary wheel chair. They are custom-made for the children with minimal costs only.

**Objective:** To determine the feasibility of this partnership program and the usefulness of MSS for families and their children with severe CP.

**Design:** Audit of medical notes and parental perception questionnaire.

**Settings:** All children who used MSS for at least 3 months between July 2004 and September 2008.

**Methods:** Retrospective collection of medical / demographic data and costs of MSS contributed by the parents. A 5-point Parental Perception Questionnaire was used to assess the usefulness of MSS and parents satisfaction.

**Results:** Seventy children received MSS during the study period and are eligible for the audit. Seventeen parents are not contactable because the family reside in remote areas. Amongst the 53 questionnaires completed, 43% and 46% of families have monthly incomes RM1000 or less and between RM1000 – RM2000 respectively. 48% (n=25) of the parents indicated that their children spent more time sitting upright with the systems. More than 85% of the parents agreed that their children could sit longer/better, seemed happier and interacted more. Less than 35% of the parents felt the systems had a positive effect on communication or dressing. About 50% of the parents felt it was easier to perform high physiotherapy. Amongst those who used modified wheel chairs or buggy chairs (about 75%), 46% spent more time outside their houses. Almost all parents indicated that they would highly recommend MSS for other children, and 75% would purchase another similar system if necessary. 66% felt the cost was affordable and 89% felt the MSS was a good use of money. More analysis will be performed to study the relationship between use of MSS and parental perceptions. Limitation of the system includes bulkiness and physical unfitness improvement access.

**Conclusion:** MSS is useful to most children with severe CP and their families and can be produced locally at an affordable cost.

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### Objective of the Study:

- to document the effect of systems on time spent by children sitting up and being out-door
- to determine the usefulness of systems for children and their families
- to assess the feasibility of this partnership program

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### Design & Method:

- Retrospective audit
- Used MSS for at least 3 months between July 2004 and September 2008
- 5-point Global Parental Perception Questionnaire

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### Sitting Up Time (in a day), n = 73

Before systems available			After systems available		
			< 4 hrs	4-8 hrs	> 8 hrs
Never	8	11.0%	2	6	0
< 4 hours	49	67.1%	18 (37%)	25 (51%)	6 (12%)
4-8 hours	13	17.8%	0	7	6
> 8 hours	3	4.1%	0	0	3

Significant numbers improved in sitting up time (exclude > 8 hours group), p = 0.031, Fisher Exact test

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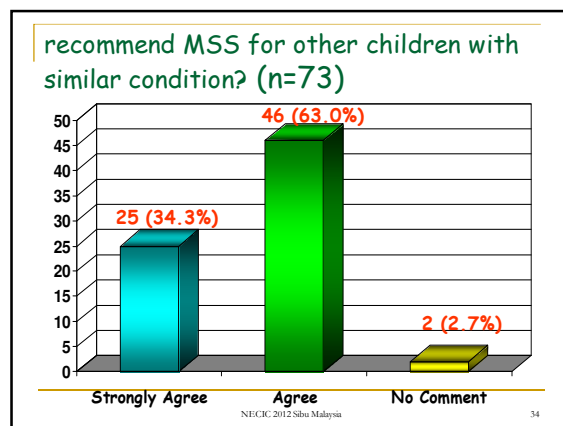
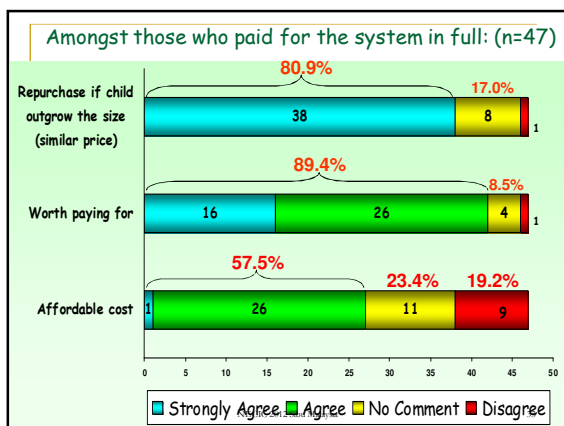
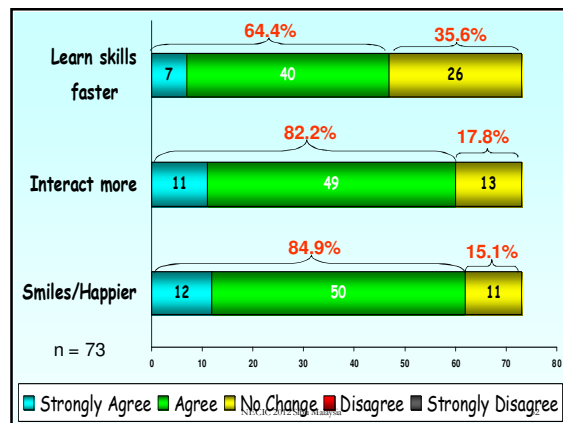
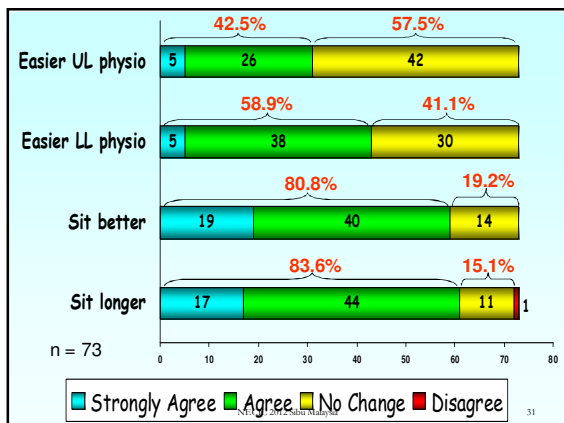
### Bringing Child Outside the House / "Bilik", n = 51 (for BC & MWC only)

Before systems available			After systems available		
			Never / Monthly	1 - 2 x weekly	Daily
Never / Monthly	21	41.2%	9	8	4
1 - 2 x weekly	15	29.4%	2	11	2
Daily	15	29.4%	0	2	13

Significant numbers improved being outdoor (exclude Daily group), p < 0.001, Fisher Exact test

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THANK YOU

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