

THE AMERICAN PAEDIATRIC EVALUATION OF DISABILITY INVENTORY (PEDI). APPLICABILITY OF PEDI IN SWEDEN FOR CHILDREN AGED 2.0-6.9 YEARS

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ABSTRACT. The American Paediatric Evaluation of Disability Inventory (PEDI) is a new instrument for evaluating functional performance in disabled children aged 6 months to 7.5 years. It was developed to determine a child's functional capacity and performance in three domains, self-care, mobility and social function, as reflected in scores on three scales: (i) *functional skills* (current capability in specific tasks), (ii) *caregiver assistance* (i.e. provided to facilitate the child's performance), and (iii) *modifications* (i.e. environmental or technical modifications needed to facilitate the child's function). The present study was designed to compare results obtained using the PEDI in a Swedish sample with the American normative data, and to analyse the content and relevance of PEDI items for use in Sweden. The PEDI was administered as a questionnaire in structured interview form to the parents of 52 non-disabled Swedish children aged 2.0-6.9 years, divided into ten age groups. Correlation analysis (Pearson's *r*) showed scores for the Swedish sample to manifest strong correlation with the respective American normative data, both for the functional skills ($r = 0.90-0.98$) and caregiver assistance ($r = 0.93-0.99$) scales, respectively. Scores for the modification scale were not compared. Thus, the results suggest the American normative data to be appropriate for reference purposes in Sweden.

Key words: children; disability; functional assessment; PEDI.

INTRODUCTION

As one of the primary clinical objectives in paediatric rehabilitation is, by means of multidisciplinary teamwork, to minimize the child's level of disability while providing the child's family with advice and support to this end, there is an increasing need of reliable means of

evaluating and documenting functional capacity. Few of the paediatric functional assessment instruments available hitherto have been characterized by acceptable applicability and standardization (1, 6). However, the Paediatric Evaluation of Disability Inventory (PEDI) has been shown to yield promising results (11).

The PEDI is a relatively new functional assessment instrument which can be used for clinical evaluation, programme monitoring, documentation of functional development, and clinical decision-making (4). It has been standardized in terms of normative data obtained for an American sample of 412 non-disabled children aged 6 months to 7.5 years. The PEDI is suitable for use in young children with various types of congenital or acquired disorders resulting in functional deficits. It is also expected to be of use in older children, if the level of their functional ability is below that of non-disabled 7.5-year-olds. The PEDI can be used as a parent report or structured interview instrument or as a checklist by professionals observing a child's functional behaviour in hospital, outpatient or educational settings (4). It is particularly promising as it is designed for use in a multidisciplinary context as an instrument for measuring the young child's functional capacity and performance (11).

The content of the PEDI has been closely aligned with the WHO International Classification of Impairments, Disabilities and Handicaps (ICIDH) (14), and includes such items as communication, self-care, dexterity in self-care activities, mobility, transfers (in and out of cars, high chairs, bath, etc.), as well as behavioural disabilities in terms of personal safety, awareness of hazards, etc.

One of the most widely accepted definitions of functional ability is the capacity to perform daily activities independently and safely in the everyday environment (14). The ICIDH provides a basic framework for the assessment of daily function, disability being defined as a deficit in the performance of

Table I. Structure of the PEDI

Domains	Dimensions		
	FS <i>n</i>	CA <i>n</i>	MAE <i>n</i>
Self-care	15	8	8
Mobility	13	7	7
Social function	13	5	5

FS: functional skills; CA: caregiver assistance; MAE: modification and adaptive equipment.

integrated daily activities (14). In the PEDI manual, however, Haley and co-workers emphasize the lack of distinction in the ICIDH between capability and performance (4). Nagi also proposes a perspective of disablement differing slightly from that of the ICIDH, which permits the differentiation of capability and performance to be taken into account more easily (7). In this view, capability is taken to refer to the best ever achievement in a standardized or ideal situation, whereas performance is taken to denote functional achievement as actually demonstrated in the everyday environment (7).

The PEDI is designed to measure performance of a range of items or tasks reflecting an increasingly sophisticated repertoire of mastered skills (5). As outlined by Wright & Boschen, the aim is to elicit a comprehensive picture of what the child actually does, as distinct from what the child might on occasion achieve (15). Thus, the PEDI measures function in terms of both capability and performance in daily activities in three domains: *self-care*, *mobility* and *social function*. It has been developed to determine and monitor functional status as reflected in score profiles for three dimensions: *functional skills*, and the *caregiver assistance* and *modifications* (environmental and technical adaptations) necessary to facilitate the child's functional performance. Aggregate score profiles for each dimension are derived from scores for individual items (or 'skill areas') in the self-care, mobility and social function domains (Table I).

Normative standard scores, based on a mean of 50 and a standard deviation (SD) of 10, were derived from the data, and are presented in the PEDI manual as tables showing the age ranges (in 6-month intervals) at which the various functional skills are mastered (4). Itemized lists providing information regarding the degree of difficulty of the various skills and activities relative to

one another within each scale are also included in the manual (4).

Reliability and validity

The Rasch probabilistic rating scale model (10, 16) was used in the development and construction of the PEDI scales. The PEDI has been assessed with regard to the internal consistency of individual scales and both interrater (4, 9, 13, 15) and intra-rater reliability (9). The PEDI has also been tested in terms of construct validity (4), content validity (5), concurrent validity (3, 8, 12, 15), discriminant validity (4, 13), and evaluative validity or responsiveness (2, 4). In these studies, the instrument has been found reliable and suitable for use in the U.S.

Aims

The present study was designed to determine whether the American normative data are appropriate for reference purposes in Sweden, and to analyse the content and relevance of the inventory items for use in Sweden.

METHODS

Subjects

Parents of children at two urban day-care centres and one rural day-care centre were mailed an invitation to participate in the study, and the parents of 52 non-disabled children agreed to do so. The 52 children were divided into ten age groups (2.0–2.4, 2.5–2.9, 3.0–3.4 years, etc.), each age group containing at least two boys and two girls, except for the 3.5–3.9- and 4.5–4.9-year-old age groups (Table II). As reported by the parents, no child had had any diseases other than normal childhood ailments, and no child was taking any prescription medicine. Children younger than 2 years and older than 7 years normally do not attend day-care centres in Sweden and are thus not represented in this study.

Administration of the PEDI

The American score form and the scoring criteria were translated into Swedish by two researchers, a physiotherapist (EN) and an occupational therapist (KO), who also administered the PEDI. The translation was checked, revised as necessary, and approved by a professional technical translator. The physiotherapist had been trained in the use of the PEDI at a workshop organized by the constructors of the instrument. The occupational therapist was given extensive training by the physiotherapist in the administration of the PEDI. To ensure consistency in the administration and scoring of the PEDI, the physical and occupational therapists together conducted two structured interviews with parents.

The *functional skills* scale was administered as a questionnaire mailed together with instruction and answered by the

Table II. Distribution of age, gender (F = female, M = male) and community size (urban, rural) in the series as a whole (n = 52)

Age (years)	F	M	n	Urban	Rural
2.0-2.4	2	2	4	2	2
2.5-2.9	2	3	5	2	3
3.0-3.4	4	4	8	4	4
3.5-3.9	1	1	2	-	2
4.0-4.4	3	4	7	3	4
4.5-4.9	2	1	3	2	1
5.0-5.4	5	3	8	5	3
5.5-5.9	2	2	4	2	2
6.0-6.4	4	3	7	5	2
6.5-6.9	2	2	4	2	2

parents at home, its satisfactory completion being checked at the day-care centres at the time when the caregiver assistance and modification scales were administered in structured interview form. The interviews were scheduled for 60 minutes, and conducted by the physical or occupational therapist.

Scoring

Part I, the *functional skills* scale, consists of 197 items, each scored 'unable' (0) or 'capable' (1). The items are divided into the *self-care*, *mobility* and *social function* domains as follows: 73 items covering eating, grooming, personal hygiene, etc., yielding an aggregate score for the *self-care* domain; 59 items covering transfers (in and out of the bath, on and off the toilet/potty, etc.), indoor and outdoor locomotion, and the negotiation of stairs, yielding an aggregate score for the *mobility* domain; and 65 items covering communication (comprehension and expression), problem-solving, play with peers, and safety awareness (regarding such hazards as stairs, sharp or hot objects, traffic, etc.), yielding an aggregate score for the *social function* domain (Table III).

Parts II and III, the caregiver assistance and modification scales, each consist of 20 items in the *self-care* (n = 8), *mobility* (n = 7), or *social function* (n = 5) domains (Table IV). Caregiver assistance for each item is rated from 5 (*independent*, i.e. no assistance required or given) to 0 (*total*, i.e. complete dependence on assistance), yielding an aggregate score for each domain. The same 20 items are rated on the *modification* scale (i.e. environmental or technical adaptations required to facilitate performance) as follows: N (none), C (child-oriented modification), R (rehabilitation equipment or assistive devices required), or E (extensive modifications required). The raw scores for individual items or 'content areas' and the aggregate scores for each domain were analysed. However, as the modification scale yields only frequency counts (i.e. how many 'Ns,' how many 'Cs,' etc. for each domain), it was not analysed further in the present study.

Raw aggregate scores are transformed into *normative standard scores* and *scaled scores*, using the PEDI software program (as in the present study), or the tables provided in the manual (4). Normative standard scores, based on a mean of 50 and an SD of 10, are adjusted for chronological age and thus provide an indication of the child's age-related functional skills. Scaled scores, on the other hand, provide an indication of the child's performance along a continuum of item difficulty or

complexity in a particular domain (self-care, mobility or social function). The range of possible scores, from 0-100, reflects increasing levels of function. Not being age-adjusted, scaled scores may be used to describe functional status of children of any age, even above a chronological age of 7.5 years.

For each Swedish child, the raw scores for functional skills and caregiver assistance were assessed according to the American scale and transformed into normative standard scores and scaled scores. The ranges for normative standard scores for each age group were calculated. For scaled scores, the means of each age group were calculated and correlated to the means of corresponding American values using Pearson's and Spear-

Table III. Items of the functional skills scale, listed by domain

Domain	Skill area
Self-care	A. Type of food textures (4 items)
	B. Use of utensils (5 items)
	C. Use of drinking containers (5 items)
	D. Tooth brushing (5 items)
	E. Hair brushing (4 items)
	F. Nose care (5 items)
	G. Hand washing (5 items)
	H. Washing body and face (5 items)
	I. Pullover/front opening garments (5 items)
	J. Fasteners (5 items)
	K. Pants (5 items)
	L. Shoe and socks (5 items)
	M. Toileting tasks (5 items)
Mobility	N. Management of bladder (5 items)
	O. Management of bowel (5 items)
	A. Toilet transfers (5 items)
	B. Chair/wheelchair transfers (5 items)
	C. Car transfers (5 items)
	D. Bed mobility/transfers (4 items)
	E. Tub transfers (5 items)
	F. Indoor locomotion methods (3 items)
	G. Indoor locomotion/distance/speed (5 items)
	H. Indoor locomotion - pulls/carries objects (5 items)
	I. Outdoor locomotion methods (2 items)
	J. Outdoor locomotion - distance/speed (5 items)
	K. Outdoor surface (5 items)
Social	L. Upstairs (5 items)
	M. Downstairs (5 items)
	A. Comprehension of word meanings (5 items)
	B. Comprehension of sentence complexity (5 items)
	C. Functional use of communication (5 items)
	D. Complexity of expressive communication (5 items)
	E. Problem resolution (5 items)
	F. Social interactive play (5 items)
	G. Peer interactions (5 items)
	H. Play with objects (5 items)
	I. Self-information (5 items)
	J. Time orientation (5 items)
	K. Household chores (5 items)
	L. Self-protection (5 items)
	M. Community function (5 items)

Table IV. Complex functional activities of the caregiver assistance and modification adaptive equipment

Domain		Skill area
Self-care	A.	Eating
	B.	Grooming
	C.	Bathing
	D.	Dressing upper body
	E.	Dressing lower body
	F.	Toileting
	G.	Bladder management
	H.	Bowel management
Mobility	A.	Chair/toilet transfers
	B.	Car transfers
	C.	Bed mobility/transfers
	D.	Tub transfers
	E.	Indoor locomotion
	F.	Outdoor locomotion
	G.	Stairs
Social	A.	Functional comprehension
	B.	Functional expression
	C.	Joint problem-solving
	D.	Peer play
	E.	Safety

man's correlation coefficients. Correlations for all age groups were obtained for each of the six domains.

Thus, in the present study, the PEDI software program was used for data storage, the computation of normative standard scores and scaled scores from the raw data, and the generation of individual aggregate score profiles. The Rasch model (10, 16) was used for goodness of fit analysis. The fit scores reflect how consistent a particular child's performance is on a given set of items with the normative profile.

RESULTS

The results of the Swedish sample for the three domains (self-care, mobility and social function) of the functional skills scale are shown in Table V, and those of the caregiver assistance scale in Table VI. In both cases, the

results are expressed in terms of normative standard scores (ranges), and scaled scores (means \pm 2 SD). Pearson's correlation analysis showed strong correlation between the Swedish results for all three domains and the corresponding American normative data, both for the functional skills scale ($r=0.90-0.98$) and for the caregiver assistance scale ($r=0.93-0.99$). The respective Spearman's correlation coefficients were 0.88-0.99 for both scales. Item level analysis using the Rasch model yielded deviations from the normative profile for four children on the social function domain of the functional skills scale.

General findings

The mean time required to interview parents was 45 minutes (range 30-60). It proved necessary to remind the parents that they should score the child's consistent level of performance and not occasional or sporadic peak achievement. Regarding the score form, it was necessary to remind the parents to score skills once mastered but no longer manifested, e.g. to score crawling though the child may no longer use the skill since he has learned to walk. Moreover, it was necessary to clarify items defined vaguely on the score form (e.g. what exactly is meant by 'thoroughly brushes teeth'), as well as items involving more than one skill (e.g. unfastening shoes and removing socks). The need for explanation was particularly manifest in such functional skills items as tooth brushing, hair brushing, car and bathtub transfers, social interaction and community function. The criteria were clarified and explained using the translated guidelines from the manual, which provided explicit definitions. We found differences among the Swedish parents

Table V. Functional skills: Ranges of normative standard scores (NS), means (m) and \pm 2 standard deviations (\pm 2 SD) of scaled scores (SS) in a Swedish sample (n = 52)

Age group (years)	n	Self-care			Mobility			Social		
		NS range	SS m	\pm 2 SD	NS range	SS m	\pm 2 SD	NS range	SS m	\pm 2 SD
2.0-2.4	4	38.8-62.8	54.6	7.2	48.2-68.3	80.4	6.0	24.9-35.1	48.8	4.1
2.5-2.9	5	42.1-57.6	60.8	3.9	45.1-62.9	78.7	4.8	33.0-55.6	55.7	4.7
3.0-3.4	8	44.2-60.0	65.3	2.0	42.5-57.5	79.8	4.0	41.5-57.4	64.4	7.5
3.5-3.9	2	37.5-46.4	63.5	1.5	42.2-47.3	81.2	1.9	46.3-53.4	62.8	0.6
4.0-4.4	7	35.9-54.6	70.3	4.1	38.4-63.8	91.6	7.3	41.9-62.5	68.4	4.7
4.5-4.9	3	37.6-68.4	76.2	7.8	43.1-63.8	94.5	5.4	36.5-90.0	74.7	12.9
5.0-5.4	8	37.6-55.0	76.9	4.7	37.3-60.7	96.1	5.9	36.7-76.4	76.0	9.6
5.5-5.9	4	36.7-58.8	80.8	10.5	39.5-54.3	92.6	8.5	36.7-59.9	76.3	11.6
6.0-6.4	7	22.1-60.5	84.6	9.2	24.4-54.9	98.5	4.1	27.1-54.3	79.4	8.0
6.5-6.9	4	19.5-62.3	83.0	12.8	14.3-53.9	96.3	7.4	25.6-60.4	84.0	16.7

Table VI. Caregiver assistance: ranges of normative standard scores (NS), means (m) and ± 2 standard deviations (± 2 SD) of scaled scores (SS) in a Swedish sample (n = 52)

Age group (years)	n	Self-care			Mobility			Social		
		NS range	SS m	± 2 SD	NS range	SS m	± 2 SD	NS range	SS m	± 2 SD
2.0-2.4	4	12.8-63.5	41.5	21.0	26.8-61.2	62.0	13.6	46.1-51.0	50.8	3.2
2.5-2.9	5	50.8-58.4	58.5	3.2	48.4-57.5	79.1	4.8	37.3-52.5	55.2	9.3
3.0-3.4	8	35.2-60.7	58.4	5.5	42.5-57.5	79.8	4.0	41.5-57.4	64.4	7.5
3.5-3.9	2	44.9-54.2	65.8	3.3	44.9-68.3	89.2	15.3	47.6-60.0	73.1	7.8
4.0-4.4	7	34.5-68.2	70.9	6.8	44.3-60.7	97.5	6.6	42.0-73.6	78.3	12.0
4.5-4.9	3	49.0-53.4	74.5	0	41.9-60.7	88.3	10.1	48.8-73.6	87.2	11.3
5.0-5.4	8	36.1-68.8	78.1	11.0	40.2-59.2	94.3	8.1	36.7-68.7	85.3	12.1
5.5-5.9	4	39.8-64.4	86.3	16.8	47.7-59.2	97.3	5.3	42.7-63.8	88.8	13.6
6.0-6.4	7	33.6-64.6	87.2	16.0	38.2-53.8	98.5	4.0	47.5-65.7	89.7	7.7
6.5-6.9	4	39.0-63.2	88.0	11.3	52.7-53.8	100	0	36.5-62.3	93.1	13.8

regarding when and how they permit their children to take more responsibility for their own care and exercise self-determination in daily routines.

DISCUSSION

This study, the first to make use of the PEDI in Sweden, yielded results similar to those of the American normative sample. The increase in mean scaled scores with increasing chronological age suggests the PEDI to be appropriate for the detection of consistent age-related gains in functional abilities. In Tables V and VI, it is notable that a marked levelling of the developmental curves occurs in the range of 3-4 years old. By this age, most of the basic functional skills are present in non-disabled children. The mobility scales have the steepest rise at earlier ages and are the first to plateau (4). As the raw scores were transformed into normative standard scores and scaled scores, and as Rasch analysis confirmed the hierarchical ordering of items, the results could be analysed as interval data. Moreover, the similarity of the Pearson's and Spearman's correlation coefficients confirmed the internal consistency of the results.

In this study, the functional skills scale was given to the parents to complete as a questionnaire, as it was considered that they know best the child's normal performance across all or most of the items, in the environments in which the child customarily functions. However, the PEDI appears to be most effective when administered in interview form (9). We found the interview time required in accordance with the constructors' suggestion that administration of the PEDI in structured parent interview form requires 45-60 minutes (4). The overall interview time was not reduced by the

fact that the parents had received the questionnaire in advance.

Our sample was selected to be as representative as possible of young children in the general Swedish population with regard to community size and the male: female sex ratio. They were selected from day-care centres, as almost all Swedish children aged 2.0-6.9 years attend day-care centres. Due to this selection process, children in the youngest and oldest age groups are not represented. Further studies for these age groups are planned. In the American normative sample, performance on functional skills items appeared to be unrelated to demographic characteristics other than age (4). We believe that our sample with children from rural and urban day-care centres was comparable with that of the American series.

Owing to the inclusion of the social function domain, the PEDI is broader in scope than other available instruments for assessing functional capacity. The results of the Swedish sample for the social function domain manifested strong correlation with the corresponding American normative data, both on the functional skills and caregiver assistance scales ($r=0.97$ and 0.99 , respectively). Moreover, item-level analysis showed most of the fitted scores deviating from the normative profile to occur in the social function domain, thus suggesting that the cultural discrepancy between the two populations is small. One reason for difficulty constructing social and cognitive items may be that items in the social and functional domains (e.g. household chores, self-protection and community function items) tend to be less clearly defined, less specific, and therefore more difficult for parents to judge. For instance, parents may lack first-hand experience of their child's performance regarding peer interaction, play with other children, etc.,

as much of such activity normally takes place at the day-care centre rather than in the home.

Concerning the relevance and content of the items for use in Sweden, and therefore the applicability of the American normative data, a few items brought to light minor but nonetheless significant differences between Sweden and the U.S. This was reflected in the necessity to explain before Swedish parents could properly understand certain items. One example is tooth brushing, where performance by Swedish children naturally differs, as Swedish parents habitually supervise their children in this respect much longer than do American parents. Another example is bathtub transfer, as taking showers is far more common than tub bathing in this country. One item missing from the PEDI, but very important in Sweden, is bicycle riding skills. Thus, for use in our country, the PEDI might benefit from some modification with regard to such national differences.

Other factors may also affect performance and therefore the results obtained. For instance, the differences noted among Swedish parents in permitting their children to assume responsibility for their own care and to exercise self-determination in daily routines may to some extent be explained by the presence or absence of siblings. Moreover, psychosocial factors may also be determinants of capacity and performance. Taken together with the cross-cultural differences mentioned above, such factors stress the fact that the assessment of function in children is a multifaceted and complex task.

The overall purpose of the PEDI is to detect the presence, extent and nature of functional deficit or developmental delay, to monitor individual or group progress, and to assess the outcome or efficacy of paediatric rehabilitation or service programmes. The present study showed strong correlation between the results obtained for non-disabled Swedish children and the corresponding American normative data, both on the functional skills and caregiver assistance scales. Thus, the PEDI would appear to be a useful instrument for the evaluation of functional performance in children with disabilities, both in clinical and research contexts. The results obtained in the present series suggest that the American normative data are applicable for reference when the PEDI is used in Sweden for children aged 2.0–6.9 years.

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REFERENCES

1. Campbell, S. K.: Measurement of motor performance in cerebral palsy. In *Movement Disorders in Children* (ed. H. Forssberg & H. Hirschfeld), pp. 264–271. Med Sport Sci Karger, Basel, 1992.
2. Dudgeon, B. J., Libby, A. K., McLaughlin, J. F., Hays, R. M., Bjornson, K. F. & Roberts, T. S.: Prospective measurement of functional changes after selective dorsal rhizotomy. *Arch Phys Med Rehabil* 75: 46–53, 1994.
3. Feldman, A. B., Haley, S. M. & Coryell, J.: Concurrent and construct validity of the Pediatric Evaluation of Disability Inventory. *Phys Ther* 70: 602–610, 1990.
4. Haley, S. M., Coster, W. J. & Faas, R. M.: A content validity study of the Pediatric Evaluation of Disability Inventory. *Pediatr Phys Ther* 3: 177–184, 1991.
5. Haley, S. M., Coster, W. J., Ludlow, L. H., Haltiwanger, J. T. & Andrellos, P. J.: Pediatric Evaluation of Disability Inventory (PEDI). Version 1.0. New England Medical Center Hospitals, Inc., Boston, Mass., 1992.
6. Hinderer, S. R. & Gupta, B. A.: Functional outcome measures to assess interventions for spasticity. *Arch Phys Med Rehabil* 77: 1083–1089, 1996.
7. Nagi, S. Z.: Disability concepts revisited: implications for prevention. In *Disability in America* (ed. A. M. Pope & A. R. Tarlov), National Academy Press, Washington, DC, 1991.
8. Newborg, J., Stach, J. R. & Wnek, L.: Battelle Development Inventory. 3rd ed. Riverside Publishers, Chicago, 1984.
9. Nichols, D. S. & Case-Smith, J.: Reliability and validity of the Pediatric Evaluation of Disability Inventory. *Pediatr Phys Ther* 8: 15–24, 1996.
10. Rasch, G.: Probabilistic models for some intelligence and attainment tests. *Denmarks Paedagogiske Institut*, Copenhagen, Denmark, 1960.
11. Reid, D. T., Boschen, K. & Wright, V.: Critique of the Pediatric Disability Inventory (PEDI). *Phys Occup Ther Pediatr* 13: 57–87, 1993.
12. Schultz, C. I.: Concurrent validity of the Pediatric Evaluation of Disability Inventory. Thesis. Tufts University, Medford, Mass., 1992.
13. Sundberg, K. N.: Interrater reliability of the Pediatric Evaluation of Disability Inventory: Parental and professional agreement. Thesis. Boston University, Boston, Mass., 1992.
14. World Health Organization International Classification of Impairments, Disabilities and Handicaps. Geneva, Switzerland, 1980.
15. Wright, F. V. & Boschen, K. A.: The Pediatric Evaluation of Disability Inventory (PEDI). Validation of a new functional assessment outcome instrument. *Can J Rehabil* 7: 41–42, 1993.
16. Wright, B. D. & Stone, M.: Best test design. Rasch measurements. Mesa Press, Chicago, 1979.

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