Outcome Measure	**Child Health Questionnaire (CHQ)**
Sensitivity to Change	No
Population	Paediatric
Domain	Health-Related QOL
Type of Measure	Self-report and parent-report
ICF-Code/s	b1-b8, d1-d9, e3-e4
Description	The Child Health Questionnaire™ (CHQ) (Landgraf et al., 1996) is a family of general quality of life surveys that have been designed and normed for children from 5-to-18 years of age. The parent form is available in 2 lengths - the CHQ-PF50 and the CHQ-PF28. • The CHQ measures 14 unique physical and psychosocial concepts. • The CHQ may be analysed - at the scale / concept level (i.e., CHQ Profile Scores) • CHQ scale scores may also be combined to derive overall physical and psychosocial scores (i.e., CHQ Two Component Summary Scores). • In the US, normative values and benchmarks for the parent-reported versions of the CHQ are available for some conditions. • The CHQ has been extensively translated using rigorous international guidelines. The child self-reported version of the CHQ consists of 87 items (CHQ-CF87) and was developed for completion by children from ages 10 and older. Development of a short-form for the self-report version is underway and expected for release in 2013. Summary scoring and norms are not yet available for either length of the self-report. The CHQ-PF28 is estimated at 5-to-10 minutes, the CHQ-PF50 requires 10-to-15 minutes, and the CHQ-CF87 completion times can vary from 16-25 minutes. Recall Time Frames: for CHQ response options vary - for example some scales ask about the past 4 weeks, the global health items asks about health "in general" and the global change items asks as compared to one year ago. Response options also vary from 4-6 levels for the scales. The item stem and survey content provided below present an indication of the different response options used throughout the surveys.

Properties	**PURPOSE** To measure health-related quality of life (HRQOL) in children and adolescents ages 5–18 years. This measure consists of child report (ages 10–18 years) and 2 versions of parent-proxy report (ages 5–18 years) of the child's HRQOL. It can be used with healthy children and those with both acute and chronic health conditions. **CONTENT** Assesses for 14 physical and psychosocial do- mains: general health perceptions, physical functioning, role/social physical functioning, bodily pain, role/social emotional functioning, role/social behavioral functioning, parent impact-time, parent impact-emotional, self-esteem, mental health, behavior, family activities, family cohesion, and change in health. **NUMBER OF ITEMS** The child-report questionnaire (CHQ- CF87) consists of 87 items. The long parent-report questionnaire (CHQ-PF50) consists of 50 items, and the short parent-report questionnaire (CHQ-PF28) consists of 28 items. **RESPONSE OPTIONS / SCALE** The response options for the CHQ are ordinal scales that vary by the item. Each item consists of 4–6 response options. Additionally, each scale consists of varying numbers of items. **RECALL PERIOD OF ITEMS** Varies by subscale. Most scales have a recall period of 4 weeks. The change in health subscale has a recall period of 1 year, and the global health, general health perception, and family cohesion subscales ask about the child's health "in general." **EXAMPLE OF USE** 1) Apaz MT, Saad-Magalhaes C, Pistorio A, Ravelli A, de Oliveira Sato J, Marcantoni MB, et al, for the Paediatric Rheumatology International Trials Or- ganisation. Health-related quality of life of patients with juvenile dermatomyositis: results from the Paediatric Rheumatology International Trials Organisation multina- tional

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7) Takken T, Elst E, Spermon N, Helders PJ, Prakken AB, van der Net J. The physiological and physical determi- nants of functional ability measures in children with ju- venile dermatomyositis. J Rheumatol 2002;42:591–5.

PRACTICAL APPLICATION

How to obtain

The CHQ scales can be obtained from the authors at www.healthact.com. The licensing fee is based upon the proposed use of the questionnaires, funding source, sample size, number of administrations, number of sites, start and end dates of the project, and the language.

Method of administration

Parents and children (ages 10–18 years) may self-administer the CHQ after

instructions from the administrator.

Scoring

Overall means for the individual CHQ scales and items can be derived using a simple summated rating approach. This method yields a profile for each of the 14 health concepts. In addition, the individual scale scores can be aggregated to derive 2 summary component scores: the physical functioning and psychosocial health summary scores. Scores are transformed to a 0 –100 scale, with a mean SD of 50 10. The CHQ Scoring and Interpretation Manual is available on CD and is required for scoring and interpretation.

Score interpretation

Range on subscales and the overall scale is 0–100, where 0 is the worst possible health state and 100 the best possible health state. Individual or population means of parent-reported quality of life can be easily compared to a normative sample via the computer scoring system. This allows for interpretation of the quality of life score and comparison to a sample of healthy children. A normative sample is not available for comparison of paediatric patient-reported quality of life. Poor HRQOL has been defined as 2 SDs below the mean of the normative sample or a physical functioning or psychosocial health summary score 30 (2,3).

Respondent burden

Minimal burden; respondents generally answer 6 items per minute.

Administrative burden

Minimal burden; the administrator provides a brief introduction to the questionnaire, and then the authors indicate that completion takes 1 minute for each of 6 items. Therefore, administration time varies from 5–25 minutes, depending on the number of items in the version being administered (i.e., 28, 50, or 87 items). No training is necessary for administration.

Translations/adaptations

The CHQ-PF50 and CHQ- PF28 have each been translated into 72 different languages, and the CHQ-CF87 has been translated into 25 different languages. A complete list of translations is available on- line at http://www.healthact.com/translation-chq.php.

PSYCHOMETRIC INFORMATION

Method of development

The CHQ was developed for children to assess HRQOL in a similar structure and methodology as that used by the Short Form 36 Health Survey (SF-36) . The scale was developed with parents of children ages 5–18 years with and without chronic health conditions using traditional item scaling analysis.

Acceptability

An examination of schoolchildren con- ducted by Raat and colleagues (7) indicated that 2% of data were missing on the CHQ-PF50 and up to 4% of items had non-unique answers. In another examination, Raat et al. examined the utility of the CHQ-PF28; results indicated that up to 1.7% of data were missing and up to 0.8% had non-unique answers. The authors have also compared the acceptability of the pencil and paper version of the CHQ-CF87 with an internet version. The internet version was found to yield fewer missing answers than the paper and pencil CHQ-CF87.

Reliability

Studies have indicated that internal consistency for the CHQ-PF50 is good, with Cronbach's for Dutch schoolchildren ranging from 0.39–0.96 for an average of 0.72 for the subscales (7). Additionally, Cronbach's has been computed for US schoolchildren (0.66–0.94), children with asthma (0.67–-0.91), and children with attention deficit hyperactivity disorder (0.56–0.92). The CHQ-PF28 has been found to demonstrate adequate internal consistency for the 2 summary scales, but the individual subscales demonstrate low internal consistency. Internal consistency for the CHQ-CF87 has been found to be adequate for the pencil and paper version and internet version, with Cronbach's ranging from 0.69–0.92.

Examination of test–retest reliability on the CHQ-PF50 indicated that intraclass correlations were significant for all but 2 scales, and test–retest means were not significantly different. Test–retest reliability for the CHQ-PF28 psychosocial summary scale was found to be excel- lent, but the individual scales were found to have low test–retest reliability.

Validity

Construct validity

The CHQ-CF87 has demonstrated good construct validity, with scores being lower for children with no chronic health conditions and higher for those with an increasing number of chronic conditions. These results were unaffected by mode of questionnaire administration (i.e., paper and pencil versus the internet). Further, exploratory and confirmatory factor analyses of the CHQ-PF50 with a sample of children and adolescents with various chronic illnesses, including juvenile idiopathic arthritis (JIA), have been

	conducted. These analyses suggest that the CHQ-PF50 demonstrates good construct validity for physical and psychosocial health constructs; however, the factor structure was observed to be different for children with chronic illnesses than for medically healthy children. Additionally, in a sample of children with systemic lupus erythematosus (SLE), the CHQ-PF50 has demonstrated good construct validity. *Convergent validity* Convergent validity for the CHQ- PF50 was examined using the Health Utilities Index in a sample of schoolchildren. Convergent validity was found to be acceptable, with correlations ranging from 0.21– 0.49 for parallel domains on the questionnaires. Further, the CHQ-P50 has demonstrated good convergent validity with the Paediatric Quality of Life Inventory in a sample of children with SLE. The CHQ-PF28 was compared with a visual analogue scale (VAS) to determine convergent validity. Convergent validity was found to be acceptable (0.15– 0.50), and the VAS was found to correlate best with the general health perceptions subscale (0.50). *Discriminant validity* Discriminant validity for the CHQ-PF50 was found to be moderate to strong when comparing children without a chronic medical condition to those with 2 chronic conditions, and when comparing those who had not attended a physician's appointment in the last year and those who had attended at least 3 times in the last year. The CHQ-PF28 demonstrated adequate discriminant validity, differentiating those children with a chronic health condition from those without. Ability to detect change In a sample of children with SLE, change in CHQ-PF50 physical health summary scores was observed to be consistent with changes in disease activity. However, the CHQ-PF50 psychosocial summary score and the CHQ-PF50 total score were observed to be less responsive to changes in health. Responsiveness of the CHQ-PF50 was also examined in a sample of Italian children with JIA. Similar to the pattern observed in children with SLE, the CHQ demonstrated good responsiveness to change in disease activity, with the physical health summary score evidencing better responsiveness than the total score or the psychosocial summary score. The responsiveness of the physical health summary score has also been examined independently in children with JIA. The CHQ was found to be sensitive to clinical change with a large standardised response mean for those who improved (0.96), small for those whose health was unchanged (0.16), and moderate for those whose health worsened (0.60). Critical Appraisal of Overall Value to the Rheumatology Community

	The CHQ appears to be a somewhat reliable and valid measure of child and adolescent functional health and wellbeing for the Australian population (Waters et al., 2000). Internal consistency of the scales varied greatly. For example, Role Social – Emotional/Behavioural α = .82-.85, Role Social – Physical = .87, Behaviour = .35-.64.
Advantages	1) Has Australian norms 2) Multiple informants, 3) Free, 4) Wide age range, 5-18 years, 5) Has been used previously in child TBI studies, 6) The availability of two summary scores (psychosocial and physical), which may be used in the evaluation of outcomes when information at the scale level is not practical. 7) The CHQ has demonstrated adequate to good psychometric properties in a number of chronic illness populations. 8) It also has both child and parent-proxy report versions, which allow for comparison of parent and child perceptions of child HRQOL. 9) The CHQ is also available in a wide range of languages for cross-cultural comparison. The CHQ is easy to administer, and there is minimal respondent burden.
Disadvantages	1) Difficult to score and interpret in context of child TBI. 2) Does not look at social functioning specifically. 3) Although the CHQ-PF50 has demonstrated good psychometric properties, the authors recommend using and interpreting summary scales on the CHQ-PF28 rather than individual scales, the latter of which have been found to have poor psychometrics. 4) The CHQ may be confusing for some respondents because the item response options and recall periods vary by item. 5) Further, the CHQ may only be used with parents and children ages 5–18 years and has not been validated for use with children ages 5 years.
Additional Information	**Clinical usability.** The CHQ requires minimal training for administration and scoring. It provides information on many discrete aspects of child HRQOL as well as overall scores; therefore, it may provide more detailed information for clinicians than other measures of HRQOL. Further, the CHQ can be mapped onto the SF-36, allowing for longitudinal measurement of HRQOL as patients transition from paediatric to adult care. However, the

	CHQ has several features that may limit use in a clinical setting. First, the completion time for the CHQ may inhibit clinic flow. Additionally, the CHQ may be expensive for regular use in a clinic. As the CHQ requires computer scoring, it does not allow clinicians to quickly review a patient's response and determine their level of HRQOL. **Research usability.** The CHQ provides information regarding discrete aspects of child HRQOL. It is also very easy to administer and score. The internet version, which has shown similar psychometric properties to the traditional pencil and paper version, may be beneficial for research use because data entry will not be required. Additionally, a large normative sample is available for comparison across illness groups and with healthy children. Unfortunately, the varying item response options and recall periods may be confusing to children and their parents, so researchers should be available for clarification of items and verify that items were completed appropriately.
Reviewers	Vicki Anderson Cathy Catroppa

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Psychometric details see Raat et al. (2005). For full information see
http://www.healthact.com/chq.php