

CASER

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Child Assessment Service Epidemiology and Research Bulletin

Message from Service Head

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CASER, the Epidemiology and Research bulletin of Child Assessment Service (CAS), was first issued in December 2005 with the purpose to provide local information that is helpful to local partners in the field of child development and rehabilitation (Table 1).

In the past ten years, CAS has strived to fulfil our vision and mission. Besides providing quality assessment to children with developmental and behavioural problems and support to their families, CAS was also involved in a broad range of public health related activities, including promotion of awareness of related issues in the society, conduction of epidemiological studies and clinical research, development of local assessment tools, providing education to professionals and the public, and participation in planning of local services and policies for children with developmental problems and rehabilitation.

In 2006, CAS commissioned the Census and Statistics Department to conduct a Thematic Household Survey on "Public Awareness and Attitudes towards Developmental Disabilities in Children". The survey results was released in September 2008 and served as an objective guide for service development and public education. This was followed by a series of publicity activities to promote

public awareness and attitudes towards developmental disabilities, including a kick-off event, dissemination of information on childhood developmental disabilities through mass media, organizing school-wide competitions and production of television documentaries.

All along, local paediatricians and allied health professionals have relied on assessment tools developed by the western countries which may not be able to appropriately reflect local children's developmental status, in particular the language ability, owing to language and cultural differences. CAS has endeavored to develop local assessment tools to better cater for local Cantonese-speaking children. The Hong Kong Cantonese Oral Language Assessment Scale (HKCOLAS) developed for local school age children was launched in March 2006. The Hong Kong Comprehensive Assessment Scales for Preschool Children (HKCAS-P), the first-ever locally developed comprehensive diagnostic instrument for preschool children, was launched in August 2014.

With the accreditation of the Paediatric subspecialty of Developmental-Behavioural Paediatrics (DBP) under the Hong Kong College of Paediatrics in 2013, CAS also serves as the major training institution for training of paediatric specialists and other allied health professionals in the field of DBP.

I wish to thank the CASER editorial board and all contributors of the past issues for their contribution and dedication. In the coming years, our team shall

strive to keep abreast of clinical knowledge, broaden our scope of activities, and continue to share local data on clinical profiles and needs of children with developmental needs.

Table 1 Topics covered by CASER

Issue	Topic
1 December 2005	Child Assessment Service Statistics: Trends and Analysis
2 June 2006	Developmental Delay and Mental Retardation
3 June 2007	Autistic Spectrum Disorders
4 January 2008	Dyslexia
5 December 2008	Specific Language Impairment
6 December 2009	Attention Deficit/Hyperactivity Disorder
7 December 2010	Physical Impairment
8 December 2011	Developmental Coordination Disorder
9 December 2012	Hearing Impairment
10 December 2013	Visual Impairment
11 December 2014	Anxiety Disorders and Anxiety Problems
12 December 2015	Acquired Cognitive Impairment

Trends in Childhood Developmental Disabilities in CAS During 2006-2015: Reflections for Health Care Professionals in the Field of Developmental Behavioural Paediatrics

Overview

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In the past decade, referrals to Child Assessment Service (CAS) for comprehensive assessment increases about 45%, from 6,809 in 2006 to 9,872 in 2015. Apart from the growth in public awareness of different developmental problems, the Family Health Service (FHS)'s launching of the Developmental Surveillance Scheme (DSS) launched in 2007 in all maternal and child health centres is considered another important contributing factor. With DSS, newborns and infants are regularly monitored on the progress of their development while parents are educated on children's developmental milestones. Children with suspected developmental problems are

given timely identification and reference to CAS for further management.

Among children diagnosed with developmental problems (Table 1) (Figure 1), a remarkable increase in number is found to be related to Anxiety Problems / Disorders, rising close to 3 times from 164 in 2006 to 479 in 2015. Although the total number is still relatively small, one should note that most of the referral questions do not touch on the emotional problem, and this rising trend reflects the heightened sensitivity of the professional colleagues to the emotional aspect of young children during assessment. There is also an increase of more than 2.5 times in the number of children diagnosed with Autism Spectrum Disorders and 2.3 times for those with Attention Deficit / Hyperactivity Problems / Disorder. Nowadays, parents as well as teachers are more informed of the features of such externalising behavioural problems and would initiate the request for assessment so that appropriate training and treatment can be provided for the children. Moreover, the number of preschool children with Significant Developmental Delay nearly doubled in these 10 years while rising trend is also noted among children with language or speech problems increased by more than 40% over the decade. Most of these children with suspected delay were referred by FHS and following our comprehensive team assessment and diagnoses, are referred for intervention. Meanwhile, with the division of labour with the Educational Psychological Service in schools, the number of school aged children diagnosed with Dyslexia and Mathematics Disorder in CAS fell from 883 in 2006 to 643 in 2015. This is coupled with a reverse increase in the number of preschool children identified as being at risk for dyslexia, reflecting the progressive earlier detection of and support for children with reading problems in Hong Kong. Last but not least, the number for some developmental conditions (e.g. Physical Impairment, Visual Impairment, Hearing Impairment) has been rather stable. Although the number seems static, CAS has indeed advanced its clinical practices to be in line with updated

international professional practice guidelines.

In the following sections, some developmental problems / disorders are selected to provide a closer look into the trends of the past decade.

Table 1 Changes of number of cases diagnosed, 2006 and 2015

Type of problems / disorders	2006	2015
Anxiety Problems / Disorders	164	479
Autism Spectrum Disorder	755	2,021
Attention Deficit / Hyperactivity Problem / Disorder	1,250	3,369
Significant Developmental Delay (Preschool)	384	760
Language Delay and Speech Problems	2,443	3,487
Dyslexia & Mathematics Disorder	883	643
Physical Impairment (Cerebral Palsy)	68	61
Visual Impairment (Moderate to Severe Low Vision or Worse)	41	43
Hearing Impairment (Moderate or Worse)	63	76

Note

- Remarkable increase
- Remarkable decrease
- Stable

Autism Spectrum and Language Problem/ Disorder

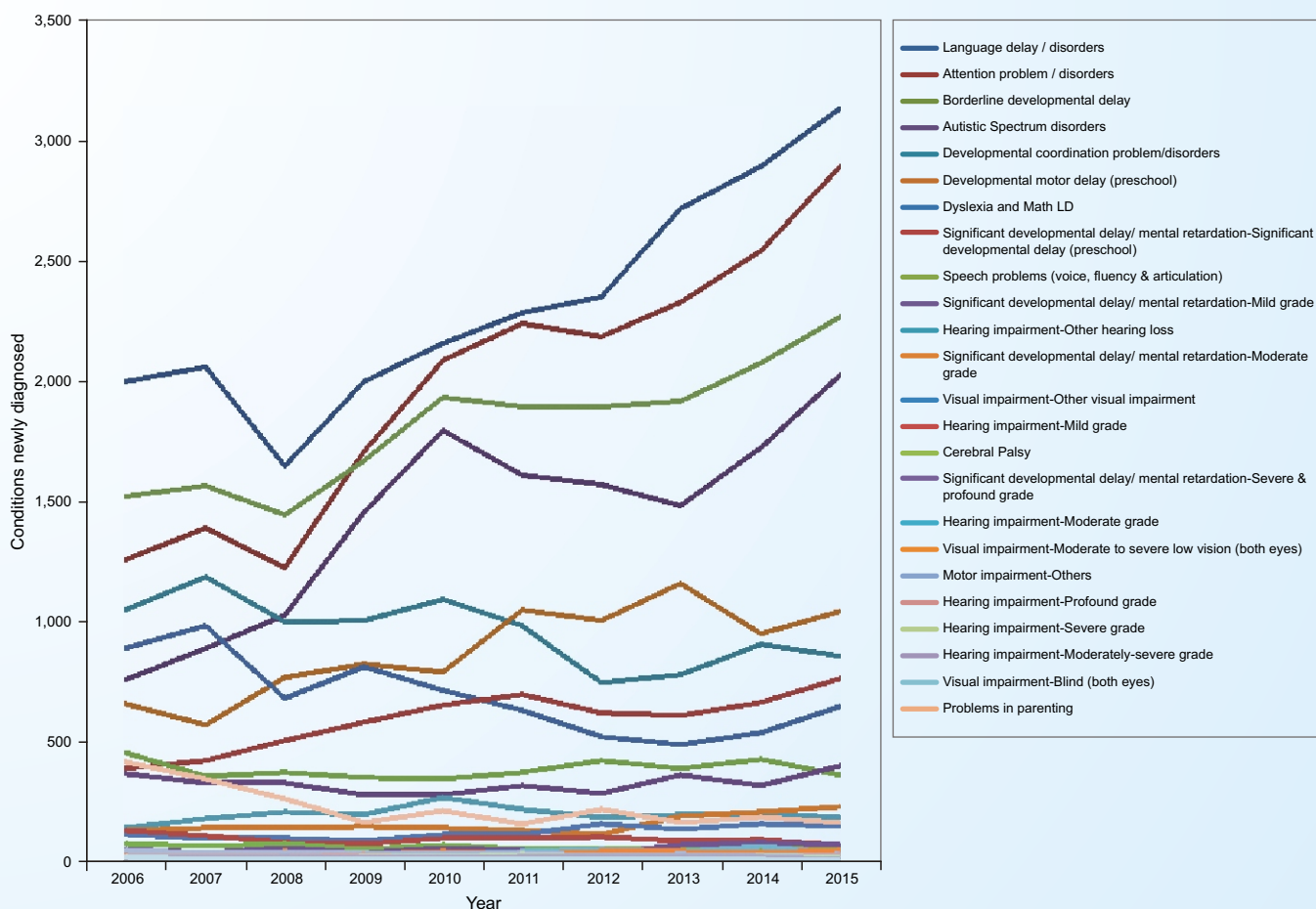
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Autism Spectrum Disorder (ASD) and Language Disorder are two common developmental disorders characterized by deficits in language and communication skills. It is only in the recently published Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)¹ that impairments in verbal communication is no longer a diagnostic criteria of ASD. In this review, we will examine the trend of change of these two communication related problems / disorders.

The trend of language disorder (including language delay of preschoolers) and ASD has been increasing steadily over the past 10 years. While the cause of this rising trend could be multifactorial, the figures are coherent with the trend observed internationally.²

Figure 1 Conditions newly diagnosed, 2006-2015



Autism Spectrum Disorder (ASD)

Following the rising trend of newly diagnosed cases of ASD in CAS in the early 2000's,³ the number of cases continue to increase from 755 to 2,021 over the 10 year period from 2006 to 2015. To explain such upward trend, the evolution of diagnostic criteria and a broadening of the diagnostic construct to include milder forms have been considered as playing an important role.^{4,5} More importantly, as the diagnostic criteria becoming more familiar to health professionals, clinicians are more attuned to detect the symptoms and switch the diagnosis of some developmental conditions to ASD.⁶ Other factors include growing awareness and acceptance of the autistic symptoms by parents, teachers and primary health care providers.⁷ The need for a specific diagnosis to receive services such as early intervention has also enhanced the recognition and subsequent referral for diagnosis.^{2,8,9} The increased efficiency over time in case identification methods used in surveys as well as changes in diagnostic practices may also account for the increasing number.^{6,10}

In Hong Kong, with the Developmental Surveillance Scheme (DSS) was developed to provide a flexible and continuing process for identifying concerns from parents, teachers or significant others, and for allowing skillful observation of children by knowledgeable health professionals. In the past years, screening checklist, standardised interview and direct observation tools for ASD were developed and are now more frequently used in the screening and diagnostic process. These may enhance early identification and objective diagnostic formulation.

Though there is speculation the increase is real due to environmental and sociocultural factors such as food additives and food allergy, vaccination, environmental pollution, advanced parental age and artificial fertilization, there is not sufficient data to support the hypotheses. Further studies on the role of environmental, genetics and biological factors will be the future research direction.

Language Disorder

Speech and language are important communication skills which lay the foundation for literacy and learning. All along, language problem has been the most frequent referral question presented to CAS. In the period from 2006 to 2015, the number of children being diagnosed with language delay / disorders had been increased from 2,443 to 3,487. Internationally, the prevalence of delayed language development and specific language impairment was found to be increasing.^{2,11} In Hong Kong, young children often start preschool training in nursery as early as two years of age. Parents begin to prepare them to attend interviews and the ability to speak is obviously essential for good interview performance. Those noticed to have language problem would be referred to Family Health Service and later to CAS for comprehensive assessment service. Furthermore, the local development of the first formal assessment tool i.e. The Hong Kong Cantonese Oral Language Assessment Scale (HKCOLAS) by the speech therapist of CAS in 2006 is an important contributing factor to the rising trend of the diagnosis of specific language impairment among school-aged children.

In conclusion, with the parents' raised awareness of the importance of communication skills to young children's early development and the availability of supportive services, the number of referrals as well as diagnoses of these two communication related disorders have been increasing over the past decade. More research is needed to delineate the underlying factors in local context so as to facilitate future planning of our service and policy implications.

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Behavioural / Emotional Problems of Disorders

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In recent 10 years from 2006 to 2015, the number of referrals to CAS presented with behavioral / emotional difficulties increased from 1,499 to 3,708 (written communication, CAS, 2016). Although not all of them were finally diagnosed with a behavioural or emotional problem or disorder, the diagnoses of Attention deficit/ hyperactivity disorder/ problem and Anxiety disorder/ problem in CAS have actually a notably increase of 2.3 fold (i.e. 2,890 children in 2015) and close to 3 fold (i.e. 479 children in 2015) respectively over time. In the following paragraphs, the possible factors associated with the rising trend of these two disorders/ problems diagnosis will be examined.

Attention Deficit / Hyperactivity Disorder / Problem

Over the last decade, professionals have worked on the early identification and intervention of children with developmental disorders. In the 2005 Policy Address, the Government announced launching the Comprehensive Child Development Service (CCDS) which aims at early identification and provision of timely support to children and families with special needs. Subsequently, Pre-primary Children Development and Behavior Management Teacher Resource Manual was published in 2008. Since that time, the number of preschool children referrals initiated by kindergarten teachers through Family Health Service to CAS increased. More diagnoses of ADHD in preschool children followed. Furthermore, the availability of local norms for some neuropsychological assessment tools¹ facilitated the process of assessment in clinical practice.

Societal factor may also be an attributing factor to the growing trend in ADHD diagnoses. With the heightened concern of parents over academic results and the pressure on schools to boost academic performance in our current competitive testing environment, there is less tolerance for disruptive classroom behaviours. School teachers and parents nowadays would initiate the need of assessment on attention deficit or hyperactivity. As mentioned in our previous issue, about half of the children were diagnosed at their primary school years between 6 to 8 years with more discipline demand in primary school.²

Indeed, the rising trend of ADHD diagnosis in CAS is consistent with the increasing prevalence of parent-reported diagnosed ADHD in the USA.³ There is also a clear upward trend in ADHD medication prescription for children in Hong Kong.⁴ Yet, it was argued by Batstra et al⁵ that ADHD was prone to diagnostic inflation. This is mainly because ADHD behaviors are common in typical development and the definitions of impairment and behavior criteria by Diagnostic and Statistical Manual of Mental Disorders (DSM) are "vague and extensible".^{6(p170)} In local context, the effect of an impairment criterion on prevalence of mental disorders including ADHD had been mentioned by Leung et al.⁷ Although it is uncertain whether there is

overdiagnosis of ADHD in Hong Kong, the possibility of reporting bias by caregivers and parents as well as the clinician practice and bias has been raised and the importance of accurate diagnosis has been stressed by Chan et al.⁸

Anxiety Disorders / Problems

Comparing with the worldwide prevalence of 6.5%⁹ and the local prevalence of 6.9%,⁷ the number of children diagnosed with Anxiety Problem or Disorder in CAS has been very low, suggesting the possibility of underdiagnosis. The low rate of identification may be related to the internalising nature of the anxiety symptoms which are not easily noted by parents, teachers or clinicians during the initial assessment sessions.

In 2012, a commissioned training was held to promote awareness among our professional staff of anxiety problem in the initial interviews with parents and to enhance our assessment skills on this aspect. After that, some checklists and rating scales were translated to facilitate our assessment process. The production of factsheet and the launching of parent workshop provided information and interim support measures to parents. In addition to our school aged treatment group, Cool Little Kids program¹⁰ was introduced into our service as an interim support measures to serve the needs of preschool children. With professional's enhanced awareness, there was a growth in the number of diagnosis in CAS in recent years. While the referral number in relation to anxiety remains low, our professional colleagues are now more aware of the children's emotional profiles, and when necessary, internal referral to clinical psychologists would be made.

Yet, much work has to be done. In our clinical practice, a conservative label of 'problem' instead of 'disorder' was often preferred, pending further observation or more thorough evaluation at child psychiatric centers.¹¹ In a recent study, the prevalence rate of anxiety disorders was found to be 27.5% among our local children with ADHD.¹² It was recommended that children with ADHD should be screened and carefully assessed for anxiety in

routine clinical practice. In the coming years, we should work further on promoting the public's sensitivity to children's emotional health so that parents could be more alert to this problem, and professionals could be more vigilant about the symptoms and signs of anxiety in daily clinical practice.

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Hearing and Visual Impairments

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Serious hearing impairment and visual impairment are among the longest known disabilities over the world. Yet children in many countries of the world still suffer from avoidable hearing loss and blindness, ones which could have been prevented or treated. Advances in medical science and technology in recent decades are followed by national practice guidelines and service systems in developed regions. Hong Kong and CAS have made corresponding changes with these advances.

Hearing Impairment

Following a pilot project in 2001 and four years of implementation of a newborn hearing screening with automated otoacoustic emission screening from 2003-2007 at the Department of Health, universal newborn hearing screening was fully launched at Hospital Authority birthing hospitals in 2007. Children diagnosed with significant permanent childhood hearing impairment will be referred to ENT and Education Bureau teams for evaluation, counselling, appropriate medical management and free hearing aid fittings. Children with risk factors are referred for paediatrics +/- clinical genetics for work up. All cases with significant permanent sensorineural childhood hearing impairment (PCHI) are also referred to CAS for developmental-behavioural assessment and coordination of future multidisciplinary management. As such, new cases of CAS received with significant permanent moderate hearing loss or worse remained relatively stable over the past decade, with around 50-60 cases from 2006-2015. With the universal

screening programme and care path for identified children in place, a cumulative incidence of about 0.14% PCHI is estimated, comparable to prevalence of developed regions.¹

With prevention of acquired causes of congenital hearing loss in children in recent decades such as rubella and meningitis, genetic causes account for an increasing majority of congenital hearing loss in children. Recent multiethnic genetic studies identified underlying genetic cause for almost 40% of patients with HI.² Information derived from numerous etiological studies show that about 70% of the genetic causes of hearing loss are due to single gene causes, with a majority of about 80% of these being autosomal recessive in nature. The GJB2 gene, which encodes the protein connexin 26, represents about 50% of the autosomal recessive causes. GJB2 related hearing loss is almost always congenital and most often moderate to severe. The SLC26A4 gene may be associated with enlargement of the vestibular aqueduct (EVA) and with Pendred Syndrome.³ Study on prominent mutations for congenital non-syndromic hearing in Chinese population showed that GJB2 and SLC26A4 gene mutations are the most common among Chinese newborn infants.⁴

With the above background, CAS makes referral for genetic studies and counselling for children with moderate grade or worse hearing impairment, family history of hearing loss and clinical signs of syndromes associated with hearing loss. Protocol for specific genes to be studied in non-syndromic cases is being developed. Training at early training or special child care centres, early signing programmes and therapy centres, and follow up for special needs support recommendations at school entry are also arranged accordingly.

Visual Impairment

According to report⁵ of Census and Statistics Department, Hong Kong Special Administrative Region, there were 1,300 children with visual impairment (VI) by age 15, representing a prevalence

of around 1.8 /10,000 for this group.

CAS receives referrals for children with VI from ophthalmology and paediatric departments and from maternal and child health centres and other practicing doctors. The number of new cases diagnosed with severe visual impairment (SVI) and Blindness, from 6/60 to no light perception (International Classification of Diseases-10)⁶ was stable through 2006-2015, with an average of about 40 cases per year. From an earlier review of 2006-2012 CAS cases with VI,⁷ causes of SVI/Blindness included cortical visual impairment (CVI) as major condition in 72.5%, whole globe, anterior segment and glaucoma pathologies in 18.1%, retinal pathology in 9.4% and optic nerve pathology in 4.7%. These are largely compatible with affected anatomical sites noted from the British Childhood visual impairment study.⁸ Developmental delay was found in 86% of cases with SVI/Blindness, and cerebral palsy was present in 46.8% of cases with SVI/Blindness and CVI.

The VI subspecialty team of CAS runs special clinics for children with SVI/Blindness to provide comprehensive assessment for vision and other aspects of development affected by visual loss. For children with VI and other developmental problems including intellectual disability, hearing or physical impairment, joint protocols will be referred to in assessment. Onsite assessment and consultation services to special preschools and special schools for children with multiple disabilities are also provided. In addition, CAS works with support groups for persons with VI, their parents, teachers and social workers, including the Hong Kong Blind Union which develops digital technology to enable easy conversions between braille, text and speech for reading and learning use in schools. Further computer technologies are being explored to support VI and other print disabled students and individuals in Hong Kong.

In our study on the service needs of parents with children with VI studying in a mainstream school, results showed that school support was their chief

concern. More collaboration with the schools and parents to enhance communication and accommodative support was recommended. In 2012, together with the Hospital Authority, CAS coordinated a commissioned training by Professor Hyvärinen Lea, ophthalmologist from Finland, on screening, assessment and training for children with VI. Clinical tests for screening and assessment of vision were shared with colleagues. A study group from different specialties, including developmental-behavioural paediatricians, ophthalmologists, neurologists and optometrists was convened after the training, with the aim of enhancing professional development and service collaboration.

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Role of CAS in Research Field of DBP

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In the past 10 years, Child Assessment Service (CAS) has played an important role in the promotion of the establishment of Developmental Behavioural Paediatrics (DBP) Subspecialty in Hong Kong. Running high quality studies and research on DBP related subjects is one of the important roles. From 2006 to 2015, CAS has conducted over 50 studies of different scales, either solely or in collaboration with partners from other academic professionals from universities or clinical professionals from hospitals. Many of them the research papers have been accepted and published in various local and international journals.

In CAS, our research topics are categorised into three main types (Table 1). Since CAS of Department of Health is the biggest DBP service in Hong Kong, our clients' clinical information was the most important and valuable piece of data for clinical research. Many of our studies included topics about special developmental behavioral paediatric conditions in HK, such as 'Multidimensional Developmental Profile of Primary School Children with Significant Hearing Impairment in Hong Kong' or 'The needs of parents with visually impaired children in mainstream school', both conducted in 2009. As CAS also runs many interim support programmes for the parents of our clients, many of our new service development or current service improvement were good topics for research. For example, we have conducted a study on 'Early intervention of childhood Anxiety' in 2006 and the 'Evaluation study of Developmental Training Program "Play and Development" workshop' in 2012.

The second type of studies conducted in CAS aims to provide information on important DBP related public health issues. For example, through the Thematic Household Survey in 2007, more understanding on

the 'Public awareness and Attitudes towards Developmental Disabilities' was achieved.

The third type of research is those supporting CAS's role to be influential experts. These included studies for major local tools development, such as the Hong Kong Cantonese Oral Language Assessment Scale (HKCOLAS) launched in 2006 and the Hong Kong Comprehensive Assessment Scales for Preschool Children (HKCAS-P) launched in 2014. All these *de novo* tools have exerted great impacts in the DBP field in HK. CAS also collaborated with other professionals in this field to validate Chinese versions of important tools that are widely used worldwide, such as 'Validating Chinese WPPSI-R for low functioning Pre-school aged Cantonese speaking Children In HK' in 2010 and 'Validation of the Chinese versions of the Spence Children's Anxiety Scale (SCAC) and Fear Survey Schedule for Children (FSSC-II) for children in Hong Kong. CAS also partners with other experts in different specialties to conduct basic science research. For example, CAS had worked with University of Hong Kong to conduct a genetic study on developmental dyslexia in HK Chinese Children in 2008.

In Hong Kong, DBP was accredited as a subspecialty in Paediatrics by the Hong Kong College of Paediatricians in 2013. In the coming years, CAS will continue to contribute to promotion of the field. With support from the Department of Health and more research experience, it is expected that further high quality studies will be conducted in CAS in coming future.

Table 1 Research projects conducted by CAS, 2006-2015

1a) Service level clinical studies and tools development
1. Balance performance in children with unilateral or bilateral severe to profound grade hearing impairment
2. Comparison of sensory processing of preschool children with and without Autistic Spectrum Disorder (ASD) in Hong Kong
3. Comparison of the visual-motor integration of school-aged children in Hong Kong and the United States
4. Study of validity of DCD functional checklist
5. Developmental profile of children with spastic diplegic cerebral palsy at the Child Assessment Service, Hong Kong

6. Exploring the cognitive profile of Hong Kong Chinese children with Mathematics Difficulties
 7. Functional outcome in children with spastic diplegia: six to twelve years post Selective Dorsal Rhizotomy
 8. Impact of noise on aided performance of Cantonese word recognition in children with significant sensorineural hearing impairment
 9. Investigating the cognitive profile of children with MD with the use of web-based test battery in HK
 10. Neurocognitive sequelae of children born premature
 11. Parental stress and mental health of children with mild grade mental retardation in different school settings in Hong Kong
 12. Performance of the visual-motor integration of pre-school children in Hong Kong
 13. The gross motor performance of children in a primary school in Hong Kong on Bruininks-Oseretsky Test of Motor Proficiency (BOTMP)
 14. Pilot study on observing children with suspected ASD in quasi-naturalistic group situation - Any added value for diagnostic purpose?
 15. Profile of children with developmental cognitive impairment diagnosed in CAS
 16. Profiles of the adaptive functioning of children with developmental delay and autism spectrum disorder in the Chinese ABAS-II
 17. Validation of School Function Assessment (HK version)
 18. Specific Language Impairment (SLI) and Dyslexia in Cantonese Chinese: comorbidity and underlying deficits
 19. Speech recognition ability of children with High Frequency Sensori-neural Hearing Loss (HFSHL) using Chinese Hearing in Noise Test (CHINT)
 20. Study of clinical profile with dyslexia diagnosed in CAS during the period from September 2003 to August 2004
 21. Survey on the needs of parents of children with moderate to severe traumatic brain injury studying in mainstream school known to Child Assessment Service
 22. The effect of print size and colored paper on reading performance of HK Chinese children with dyslexia
 23. The needs of parents with visually impaired children studying in mainstream primary school in Hong Kong
 24. The relation between age of hearing aid fitting or cochlear implantation and language and literacy abilities in a group of significant hearing impaired children before primary school entry in Hong Kong
 25. Validating Chinese WPPSI-R for low functioning pre-school-aged Cantonese speaking children in Hong Kong: a cohort study
 26. Validation of Connected Speech Recognition Test for Cantonese speaking hearing impaired children
 27. Validation of the Chinese versions of the Spence Children's Anxiety Scale (SCAS) and Fear Survey Schedule for Children (FSSC-II) for children of Hong Kong
 28. Validation study of the Perceived Efficacy and Goal Setting System (PEGS) for the children with Developmental Coordination Disorder (DCD) in Hong Kong
- lb) Service level projects for new service development or current service improvement
1. A pilot study of the evaluation of Developmental Training Programme (DTP) - 'Play and Development' workshop
 2. A pilot study on parental view of nurse-led language stimulation programme for families having children with suspected language delay
 3. A pilot study on the applicability of "Key Math" in assessment of mathematics performance of local primary students
 4. Attention Bias Modification (ABM): a new therapy for children with social anxiety problem
 5. Effectiveness of group cognitive-behavioural treatment for childhood anxiety in community clinics
 6. Parental views on service needs of preschool children with developmental delay and their families
 7. The effects of problem solving skill training on primary school children with acquired brain injury in school environment in Hong Kong
 8. Training group for parents of school-age children with disruptive behavior: evaluation of its effectiveness
- II) Public health related studies
1. Public awareness and attitudes towards developmental disabilities in children
 2. Service needs of family or parents with children having learning and behavioural problems
- III) Research supporting CAS's role in advancing the field
1. Case series of child abuse identified at Child Assessment Service from 2009-2013
 2. Developing a Theory-of-Mind (ToM) skills assessment battery for Cantonese-speaking children in Hong Kong
 3. Development of a dyslexia screening test for preschool children in Hong Kong
 4. Development of a dyslexia screening test for preschool children in Hong Kong - pilot project
 5. Development of a new Chinese Reading Acuity Chart for HK Chinese children
 6. Development of a set of measure of development, learning and school readiness for preschool children
 7. Development of an oral language assessment scale for local children aged 2 to 6 years
 8. Development of Preschool Developmental Assessment Scale for children aged 4 to 6 years
 9. Genetic study of developmental dyslexia in Hong Kong Chinese children
 10. Multidimensional developmental profile of primary school children with significant hearing impairment in Hong Kong
 11. Study on facial affect processing theory-of-mind abilities in children with Autistic Spectrum Disorders and their neuropsychological profile
 12. Translation and validation of Cerebral Palsy Quality of Life Questionnaire-Teen in Hong Kong Chinese population [CP QoL-Teen (HK)]

Child Assessment Service Epidemiology and Research Bulletin: Looking Ahead

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¹ Contract Senior Doctor

The Child Assessment Service Epidemiology and Research Bulletin (CASER) was launched in 2005 to provide a platform for Child Assessment Service (CAS) colleagues to conduct regular epidemiological and clinical reviews of their work, provide updates on specific conditions and report on studies done at CAS. Over its ten years of publication, CASER issues have covered the major conditions seen at CAS, reporting service data, patient profiles, and scientific and local developments on each subject. This occurred in parallel with clinical protocol reviews within CAS on different conditions over the period.

During this same period, the epidemiology and research (E&R) team continued to promote evidence based work and scientific activities in CAS. Systematic training was organised on research methods to enhance relevant knowledge and skills relevant to the field. A range of studies were performed and publications produced by CAS staff, including descriptive and analytical studies to tools development. Many of these were done in collaboration with academic partners in Hong Kong, through which learning and close working relationships were generated. In the past ten years, development of assessment tools has become an important contribution by CAS to the field. Tests were developed, validated and normed with reference to local research data and cultural characteristics. These instruments have been positively received by professional colleagues in Hong Kong, and contribute to common language and standardised references in assessment.

This past decade's work above provided a solid foundation for achieving subspecialty status work in CAS. In 2013, a Developmental-Behavioural

Paediatrics (DBP) subspecialty was inaugurated under the Hong Kong College of Paediatricians, whereby CAS is a major training centre. With these developments, CAS is positioned through clinical, educational and scientific work to promote its missions for children with developmental problems and their families.

CASER has played an important role in CAS's evidence based and professional development. The recorded information will provide valuable reference for epidemiological and service data in Hong Kong. Through continuous work and rigor, it is hoped that CASER will rise to become the robust scientific publication which supports the field of child health and development, disabilities and rehabilitation in Hong Kong and beyond.

Recent Publication and Scientific Presentations

Publication

Ip P, Chung BH, Ho FK, Chan GC, Deng W, Wong WH, Lee SL, Chan PY, Ying D, Wong WL, Tung KT, Lau YL. Prenatal tobacco exposure shortens telomere length in children. *Nicotine Tob Res.* [journal on the internet]. 2016 May 18 pii: ntw139 [cited 2016 June 30]. doi: 10.1093/ntr/ntw139. [Epub ahead of print]

Scientific Presentations

Understanding typical and disordered development in speech sound system (phonology) in children. How can teachers identify and support children with speech sound system problems in schools? on 24 May 2016 at Thematic Course on Education of Students with Hearing Impairment and Speech and Language Impairment, The Hong Kong Institute of Education by CHEUNG Sau-ping, Pamela.

Understanding the aim, scope, and procedures on screening and assessment of oral language functions in pre-school and school-age children. How can teachers identify children with oral language difficulties in schools? on 12 May 2016 at Department of Special Education and Counselling (SEC), The Hong Kong Institute of Education by CHAN Wai-ki, Amy.

How to enhance the oral language skills of school-age children with language impairment on 13 May 2016 at Department of Special Education and Counselling (SEC), The Hong Kong Institute of Education by CHAN Wai-ki, Amy.

贏在起跑線，拒絕再玩？ on 30 April 2016 at Hong Kong Paediatric Foundation by Dr LO Pui-wan, Henny.

Application of visual strategies in intervention and teaching of children with ASD on 21 April 2016 at Diploma in Special Education (Special Learning Needs Education Course in Autism/Asperger's Syndrome), HKU SPACE by LAM Ling.

Management of children with handwriting problem on 16 March 2016 at Education Programme for Medical and Paramedical Professionals Working with Handicapped Children, Comprehensive Paediatric Rehabilitation Centre (CPRC) of Pamela Youde Nethersole Eastern Hospital by NG Wai-fong.

Neuropsychological consequences of traumatic brain injury on 10 March 2016 at Hong Kong Physiotherapy Association Limited by TSANG Yee-ha, Lucia.

Understanding typical and disordered development in speech sound system (phonology) in children. How can teachers identify and support children with speech sound system problems in schools? on 7 March 2016 at Thematic Course on Education of Students with Hearing Impairment and Speech and Language Impairment, The Hong Kong Institute of Education by CHEUNG Sau-ping, Pamela.

Fine motor difficulties related to Specific Learning Difficulties in reading and writing on 5 March 2016 at The Hong Kong Council of the Church of Christ in China by TAM Ka-yan.

How to enhance the oral language skills of school-age children with language impairment on 3 March 2016 at Department of Special Education and Counselling (SEC), The Hong Kong Institute of Education by CHAN Wai-ki, Amy.

Understanding the aim, scope, and procedures on screening and assessment of oral language functions in pre-school and school-age children. How can teachers identify children with oral language difficulties in schools? on 1 March 2016 at Department of Special Education and Counselling (SEC), The Hong Kong Institute of Education by CHAN Wai-ki, Amy.

Assessment and intervention of school aged children with language impairment on 24 February 2016 at Department of Special Education and Counselling (SEC), The Hong Kong Institute of Education by CHAN Wai-ki, Amy.

Developmental coordination disorder and learning disabilities on 25 January 2016 at Department of Educational Psychology, Faculty of Education, The Chinese University of Hong Kong by CHUI Mun-ye, Mandy.

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