

NEUROPSYCHOLOGICAL ASSESSMENT

Cristina Boix Lluch

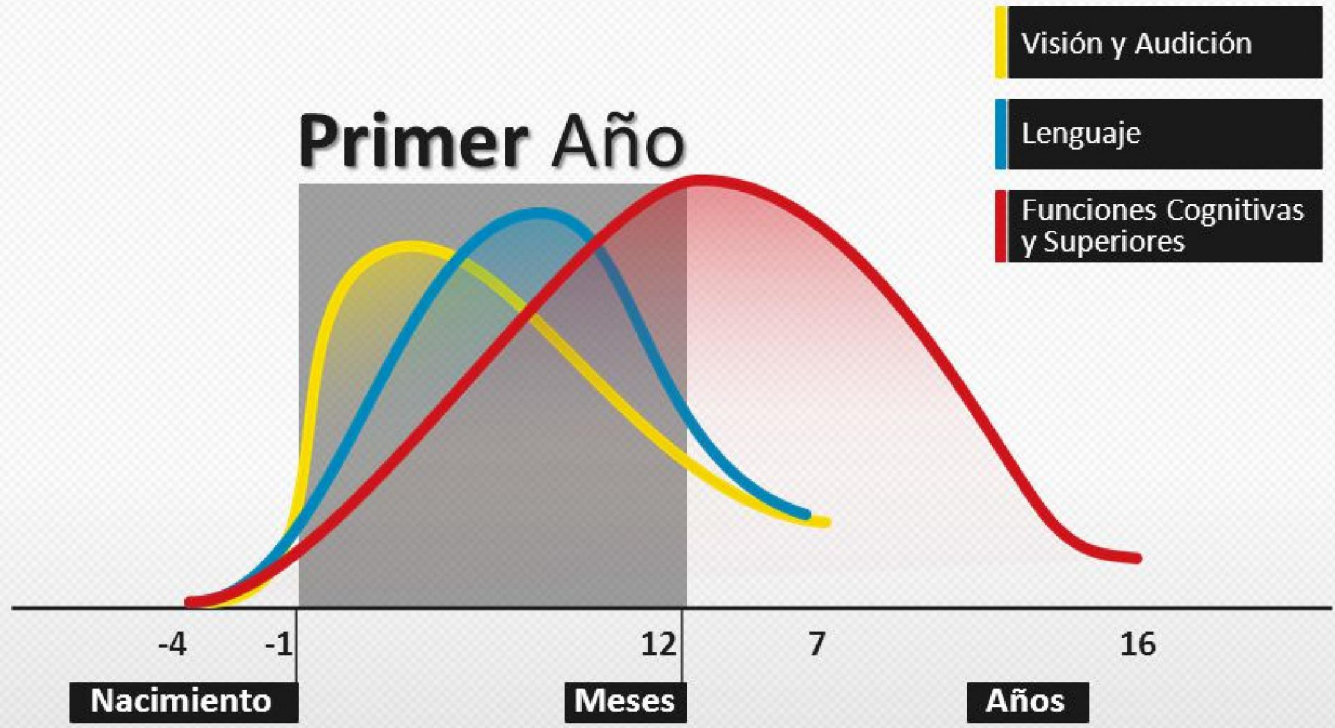
Neuropsicologa Adjunta

Servei de Neurologia

Hospital Sant Joan de Déu

Barcelona

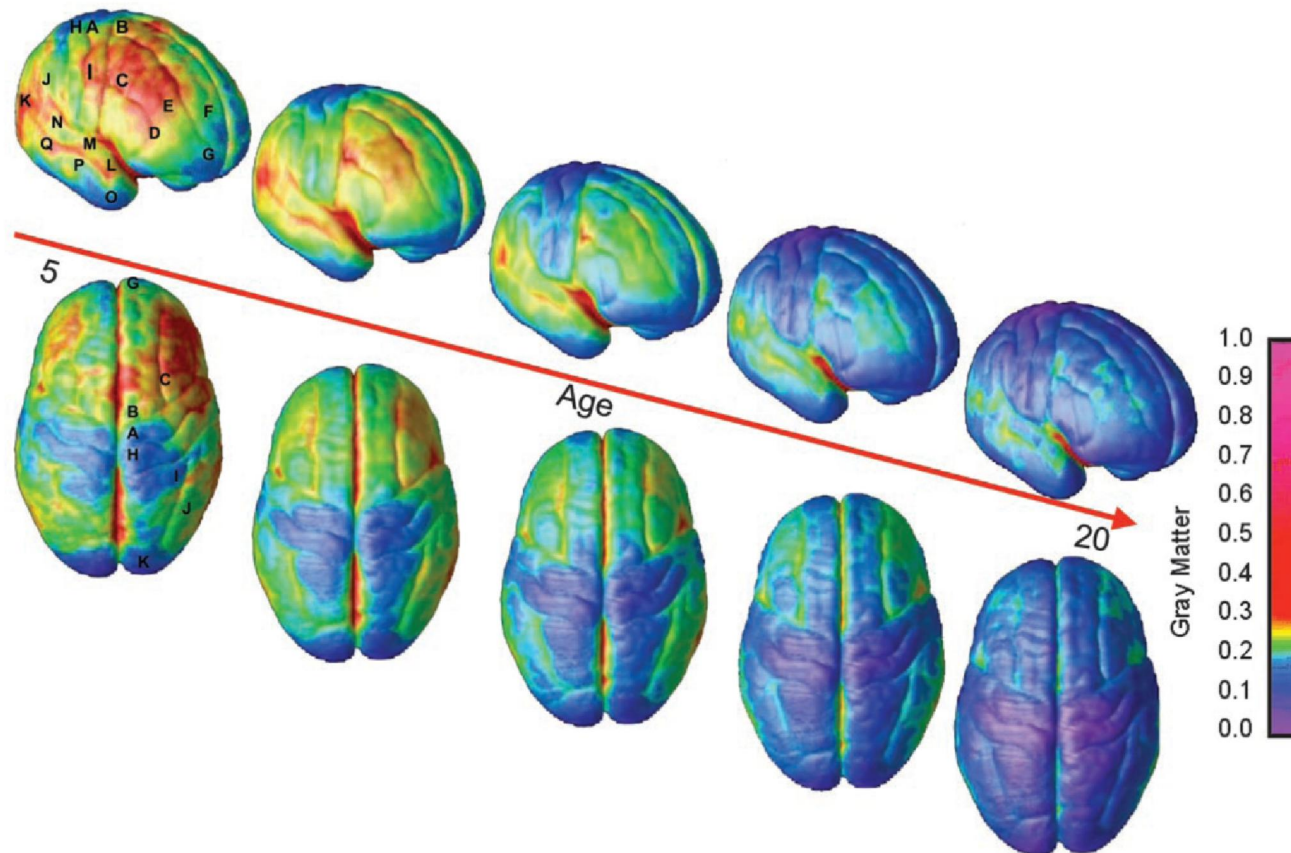
Desarrollo de Funciones Básicas



FUENTE: NELSON (2000)

Dynamic mapping of human cortical development during childhood through early adulthood

Nitin Gogtay*, Jay N. Giedd*, Leslie Lusk*, Kiralee M. Hayashi*, Deanna Greenstein*, A. Catherine Valtuzis*, Tom F. Nugent III*, David H. Herman*, Liv S. Clasen*, Arthur W. Toga*, Judith L. Rapoport*, and Paul M. Thompson*



Neuropsychol Rev (2014) 24:389–408

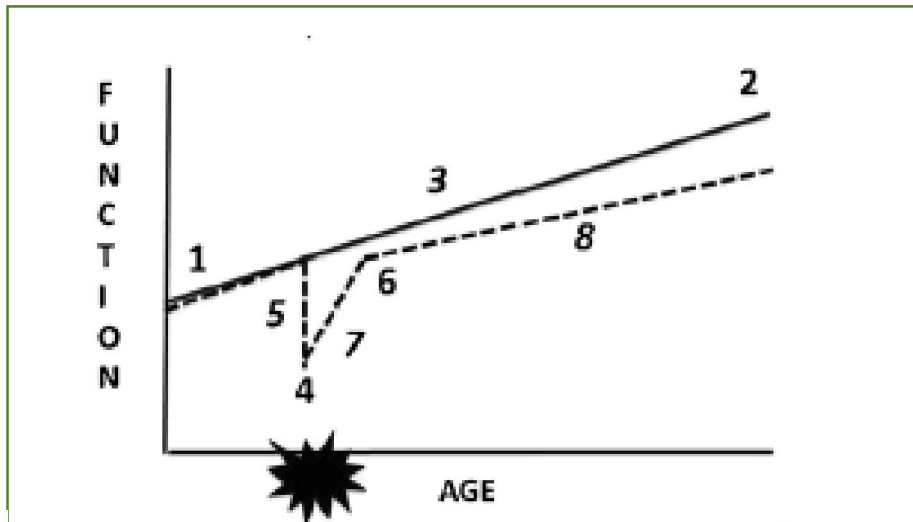
DOI 10.1007/s11065-014-9261-x

REVIEW

Functional Plasticity in Childhood Brain Disorders: When, What, How, and Whom to Assess

Maureen Dennis · Brenda J. Spiegler · Nevena Simic ·
Katia J. Sinopoli · Amy Wilkinson · Keith Owen Yeates ·
H. Gerry Taylor · Erin D. Bigler · Jack M. Fletcher

- ❖ The emergence of cognitive deficits in development after Brain Tumor



No cognitive improve



No deterioration

- ❖ Lymphoblastic Leukemia (25%)
- ❖ Tumors of the central nervous system (CNS) (20%)



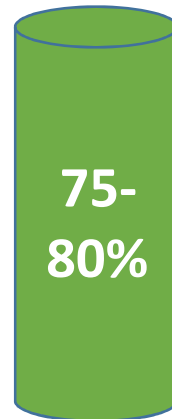
Treatment

Survivors

Neuropsychological deficits



75-
80%



>70%



NEUROPSYCHOLOGICAL DEFICITS

❖ Lymphoblastic Leukemia

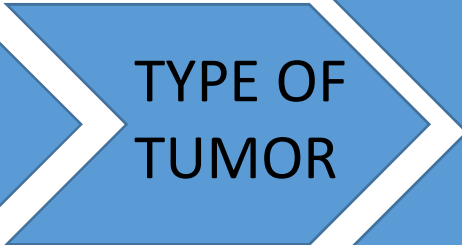


TREATMENT

❖ Brain Tumor (BT)



LOCATION

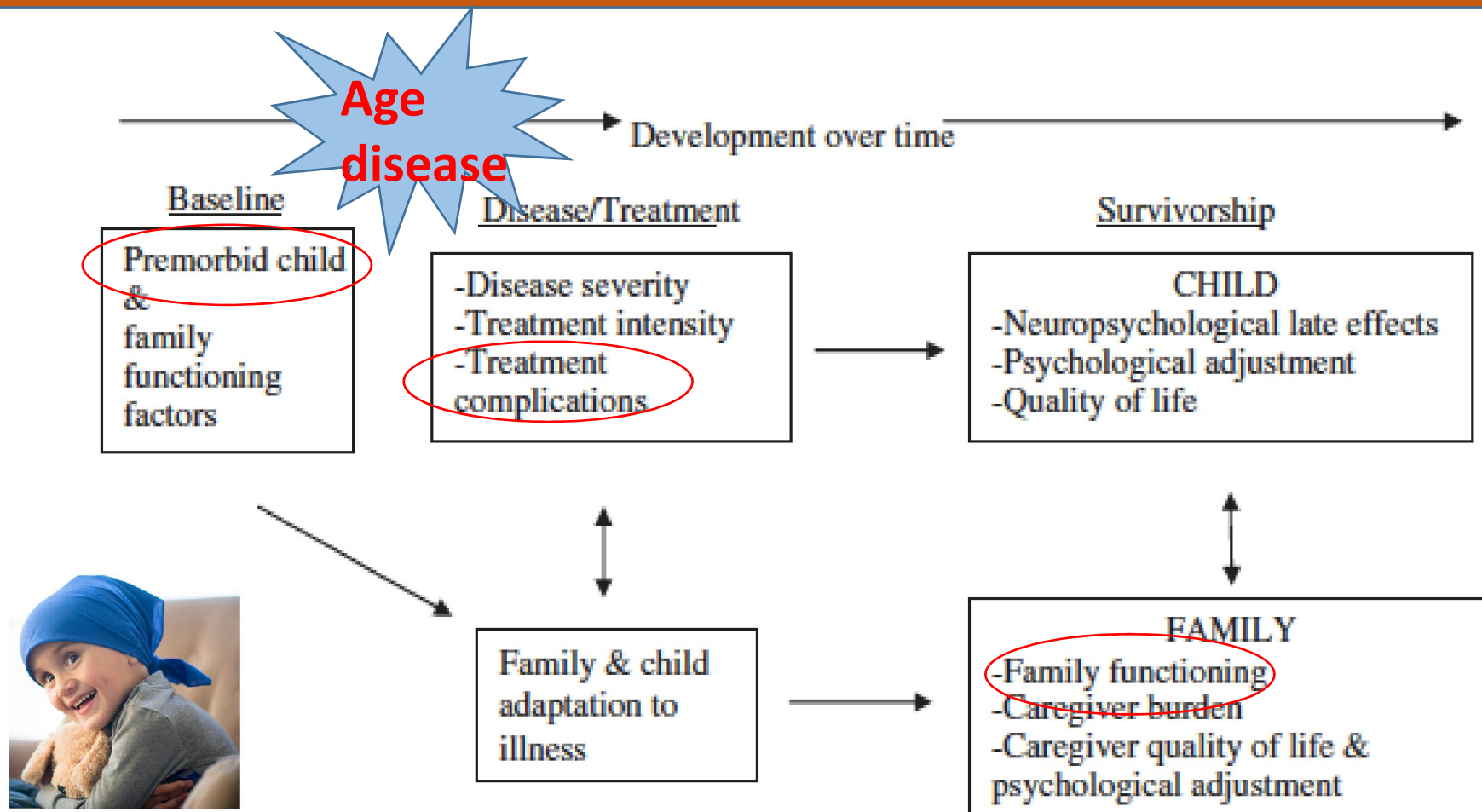


TYPE OF
TUMOR



TREATMENT





Hypothesized model of neurocognitive late effects and family functioning

(Adapted from Peterson and Drotar, 2006)

NEUROPSYCHOLOGICAL DEFICITS

❖ Lymphoblastic Leukemia

TREATMENT

VOLUME 34 · NUMBER 22 · AUGUST 1, 2016

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Chemotherapy Pharmacodynamics and Neuroimaging and Neurocognitive Outcomes in Long-Term Survivors of Childhood Acute Lymphoblastic Leukemia

Kevin R. Krull, Yin Ting Cheung, Wei Liu, Slim Fellah, Wilburn E. Reddick, Tara M. Brinkman, Cara Kimberg, Robert Ogg, Deokumar Srivastava, Ching-Hon Pui, Leslie L. Robison, and Melissa M. Hudson

❖ Brain Tumor (BT)

LOCATION

TYPE OF TUMOR

TREATMENT



NEUROPSYCHOLOGICAL DEFICITS

❖ Lymphoblastic Leukemia

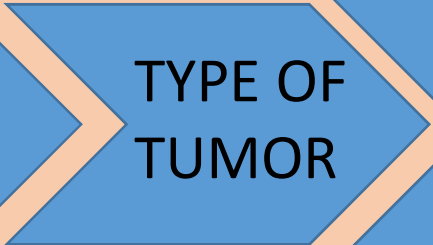


TREATMENT

❖ Brain Tumor (BT)



LOCATION



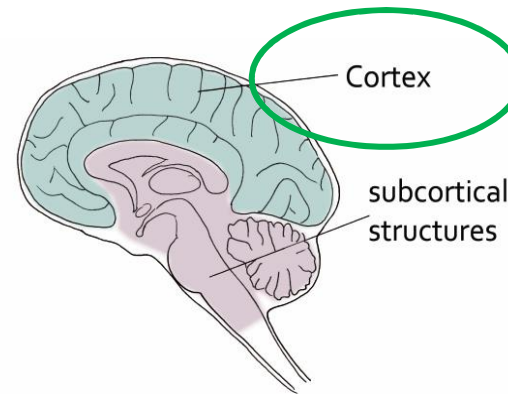
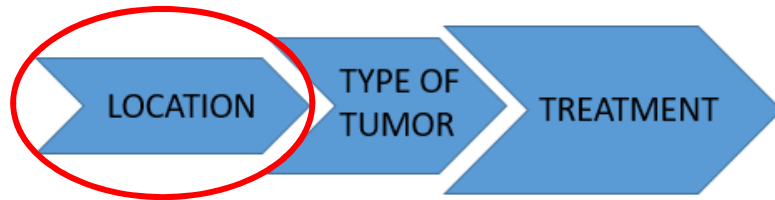
TYPE OF
TUMOR



TREATMENT



BRAIN TUMOR



Childs Nerv Syst (2016) 32:1931–1937
DOI 10.1007/s00381-016-3170-7

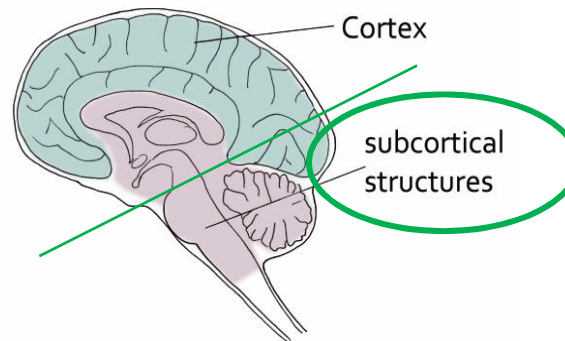
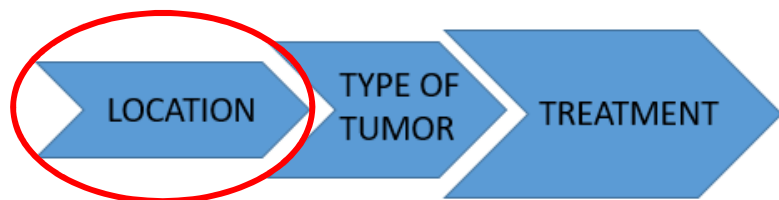


SPECIAL ANNUAL ISSUE

Preoperative neurocognitive evaluation as a predictor of brain tumor grading in pediatric patients with supratentorial hemispheric tumors

D. Chieffo^{1,2} · Gianpiero Tamburrini¹ · P. Frassanito¹ · V. Arcangeli² · M. Caklarelli¹ · C. Di Rocco^{1,2}

BRAIN TUMOR



❖ 60–70 % of CNS tumors in the pediatric population occurs infratentorially

Contents lists available at ScienceDirect

Seminars in Fetal & Neonatal Medicine

journal homepage: www.elsevier.com/locate/siny

Review

Structure–function relationships in the developing cerebellum: Evidence from early-life cerebellar injury and neurodevelopmental disorders

Catherine J. Stoodley^{a,*}, Catherine Limperopoulos^b

^a Department of Psychology and Center for Behavioral Neuroscience, American University, Washington DC, USA
^b Diagnostic Imaging and Radiology, Children's National Health Systems, Washington DC, USA

Review Article **Cancer** Month 00, 2016

Posterior Fossa Syndrome: Review of the Behavioral and Emotional Aspects in Pediatric Cancer Patients

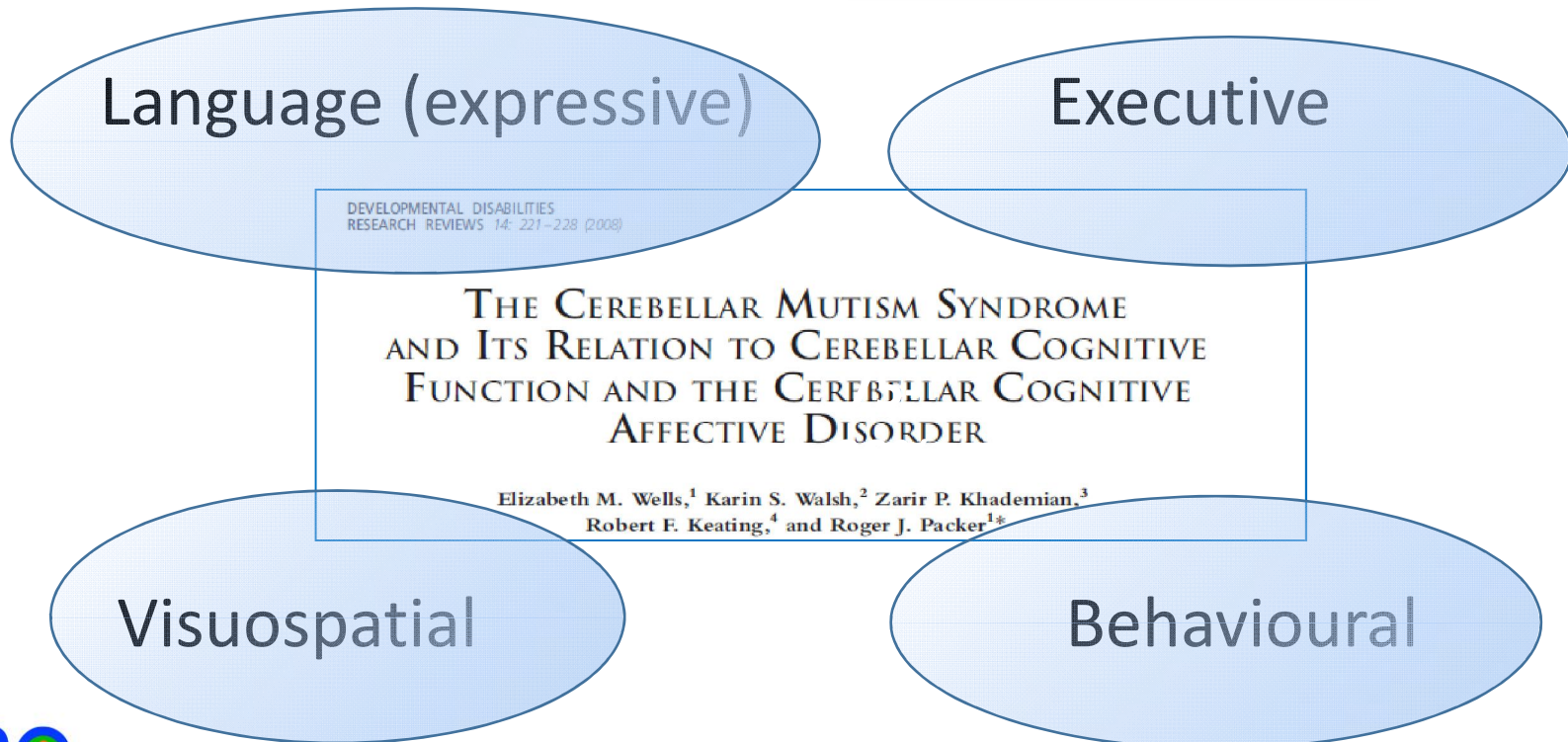
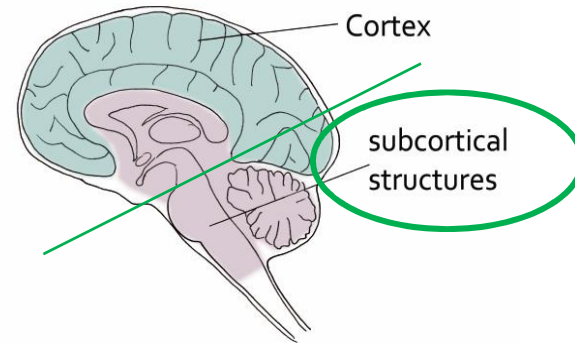
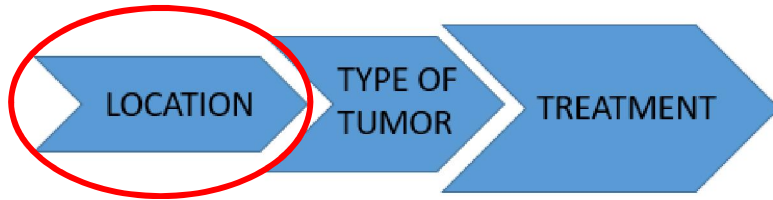
Jane C. Lanier, MD¹; and Annah N. Abrams, MD^{2*}

DEVELOPMENTAL DISABILITIES
 RESEARCH REVIEWS 14: 221–228 (2008)

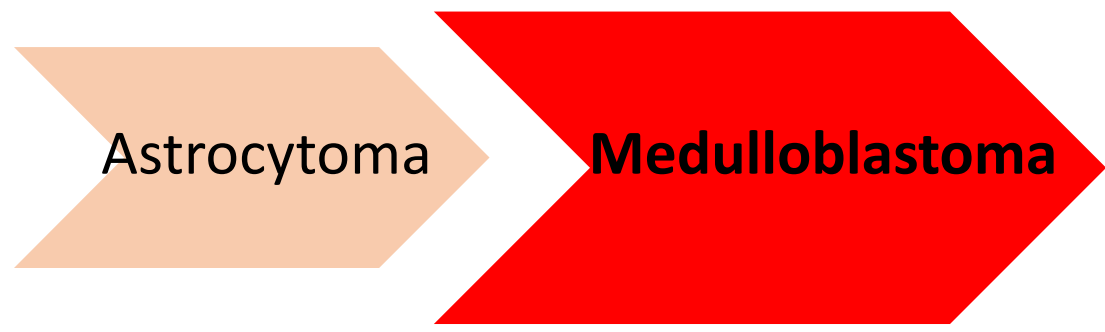
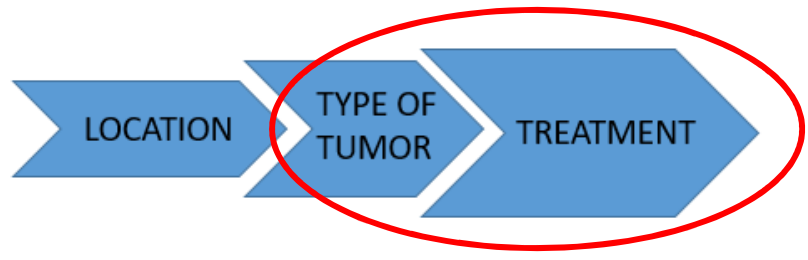
THE CEREBELLAR MUTISM SYNDROME AND ITS RELATION TO CEREBELLAR COGNITIVE FUNCTION AND THE CEREBELLAR COGNITIVE AFFECTIVE DISORDER

Elizabeth M. Wells,¹ Karin S. Walsh,² Zarir P. Khademian,³
 Robert F. Keating,⁴ and Roger J. Packer^{1,*}

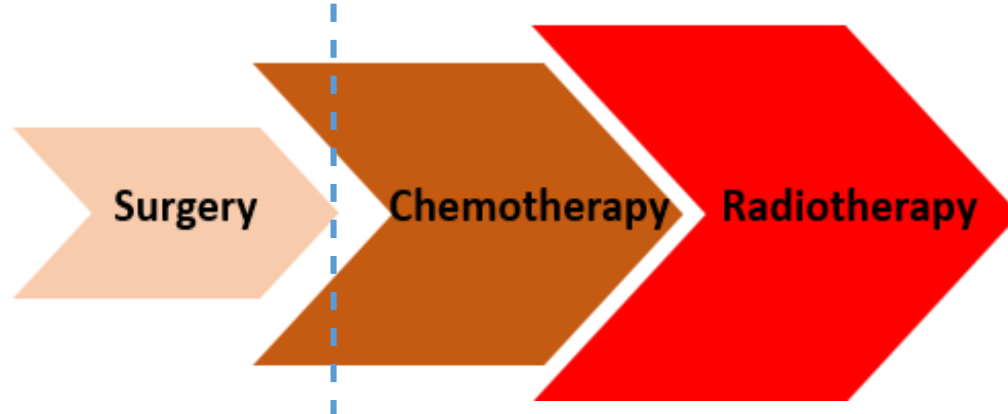
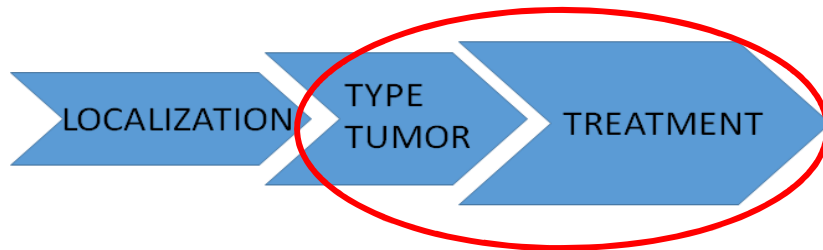
BRAIN TUMOR



BRAIN TUMOR



Brain Tumor



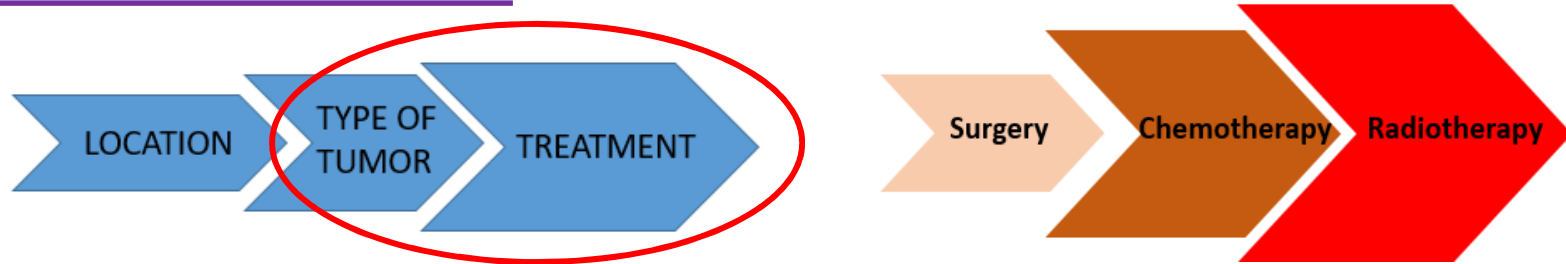
Specific **cognitive deficit**



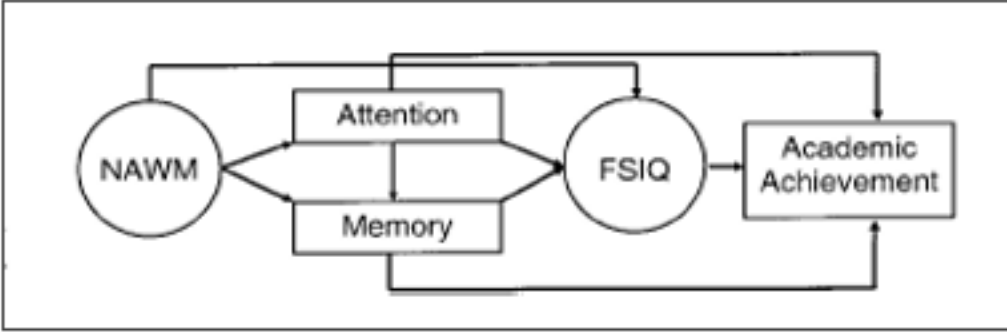
Subcortical dysfunction:

- attentional / executive
- speed processed: reaction time
- memory: recall
- visuospatial
- behavioural change

BRAIN TUMOR



Developmental Model Relating White Matter Volume to Neurocognitive Deficits in Pediatric Brain Tumor Survivors
Wilburn E. Reddick, | *CANCER* May 15, 2003 / Volume 97 / Number 10



DEPARTMENTS:

Neuropsychology

Rehabilitation

Neurology



Speech
Therapist

Oncology

Occupational Therapist

Psychoncology

PROTOCOL:

Tumor diagnosis

If possible: brief cognitive assessment and questioners

Treatment (Surgery)

If possible: brief cognitive assessment and questioners

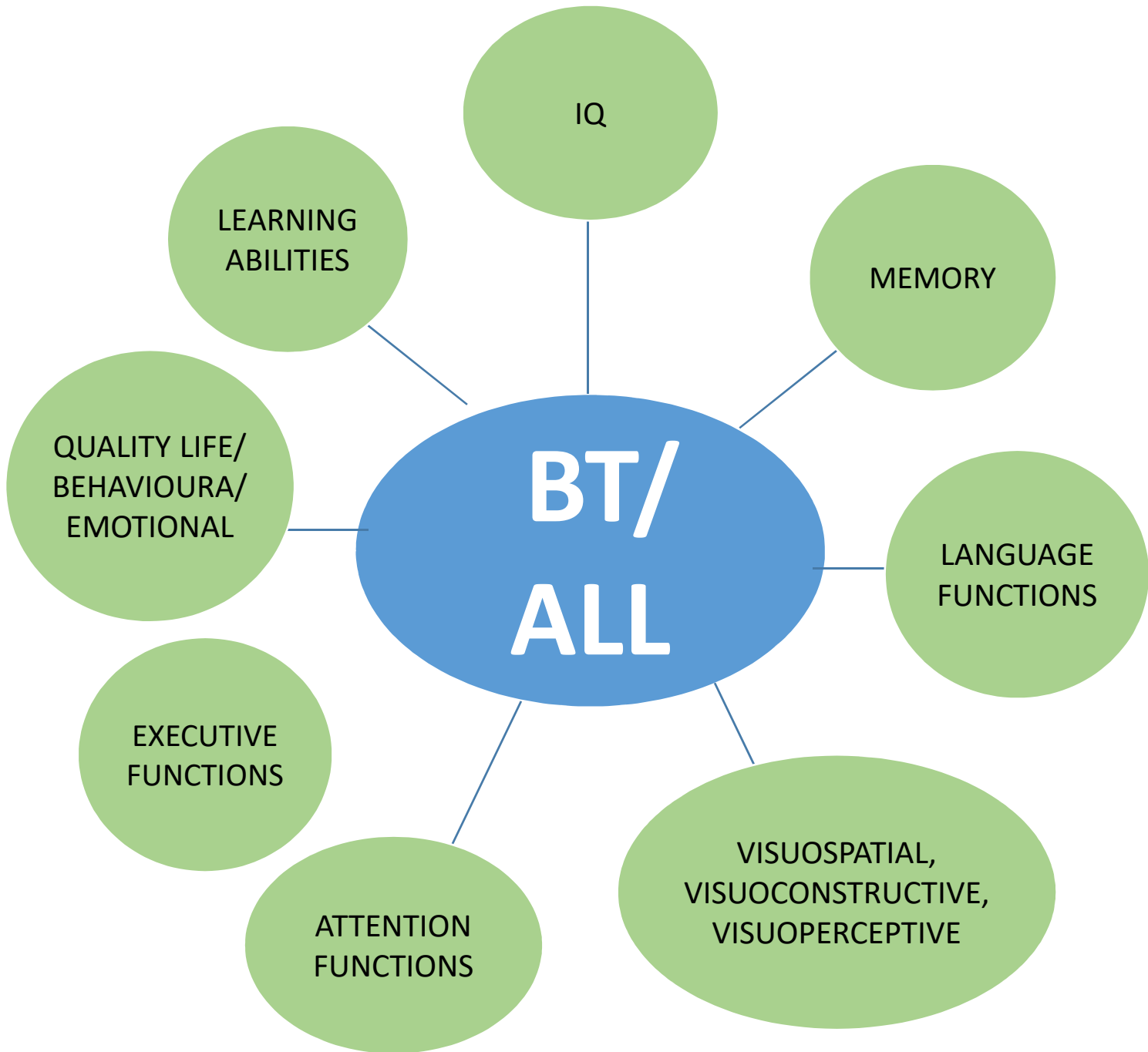
Treatment (RT or ChT)

Neuropsychological assessment (Screening) (3months post-tt)

Cognitive RHB (8months +/-)

Neuropsychological assessment  Follow-up 5-10 years

NEUROPSYCHOLOGICAL PROFILE



PROTOCOL:

Tumor diagnosis

If possible: brief cognitive assessment and questioners

Treatment (Surgery)

If possible: brief cognitive assessment and questioners

Treatment (RT or ChT)

Neuropsychological assessment (Screening) (3months post-tt)

Cognitive RHB (8months +/-)

Neuropsychological assessment  Follow-up 5-10 years

- Speed processes
- Vocabulary (lexical)
- WM
- Sustained attention

- Achenbach: parents
- BRIEF: parents

PROTOCOL:

Tumor diagnosis

If possible: brief cognitive assessment and questioners

Treatment (Surgery)

If possible: brief cognitive assessment and questioners

Treatment (RT or ChT)

Neuropsychological assessment (Screening) (3months post-tt)

Cognitive RHB (8months +/-)

Neuropsychological assessment  Follow-up 5-10 years

- Intelligence (K- BIT,..)
- Speed processes
- Vocabulary (lexical and comprehensive)
- Memory: verbal, visual
- Visoconstruction
- Executive Functions
- Attention Functions

- Achenbach: parents
- BRIEF: parents

PROTOCOL:

Tumor diagnosis

If possible: brief cognitive assessment and questioners

Treatment (Surgery)

If possible: brief cognitive assessment and questioners

Treatment (RT or ChT)

Neuropsychological assessment (Screening) (3months post-tt)

Cognitive RHB (8months +/-)

Neuropsychological assessment  Follow-up 5-10 years

- Intelligence (WISC-V)
- Speed processes
- Language
- Memory: verbal, visual
- Visoconstruction
- Executive Functions
- Attention Functions
- Reading
- Spelling
- Numeracy

- Achenbach: parents /teacher
- BRIEF: parents /teacher
-

Consensus paper on post-operative pediatric cerebellar mutism syndrome: the Iceland Delphi results

Thora Gudrunardottir¹ · Angela T. Morgan^{2,3} · Andrew L. Lux⁴ · David A. Walker^{5,6} ·
Karin S. Walsh⁷ · Elizabeth M. Wells⁸ · Jeffrey H. Wisoff⁹ · Marianne Juhler¹⁰ ·
Jeremy D. Schmahmann^{11,12} · Robert F. Keating¹³ · Coriene Catsman-Berrevoets¹⁴ ·
For the Iceland Delphi Group

- ❖ important: neuropsychological assessment at 12 months posttreatment and then annually for the next 5 years (and more)

❖ Neuropsychology:

- Global normal cognitive development
- Cognitive profile/ learning acquisitions
- Rehabilitation: monitoring and establish
- Follow-up 5 years post-treatment

❖ Our ultimate goal for survivors of childhood cancer is returning them to the quality of life that they would have had if they had never had cancer.

