



# NBCNS

network for research  
in NB and CNS tumors  
in children



# ax till limpa



Before  
diagnosis

Diagnosis

Treatment

Follow up/  
rehabili-  
tation

# Before diagnosis

- environmental factors
- genetic predisposition
- tumor development
  
- symptoms/signs

# environmental risk factors

”The Nordic Childhood  
Brain tumor Study”

Gene-polymorphisms  
related to environmental  
factors including mobile  
telephones



# environmental riskfactors



# tumor development initiation-progression

- Genetic events
- Epigenetic events
- Genetic instability
  
- Angiogenesis
- Growth factors
- Apoptosis
- Cancer stemcells

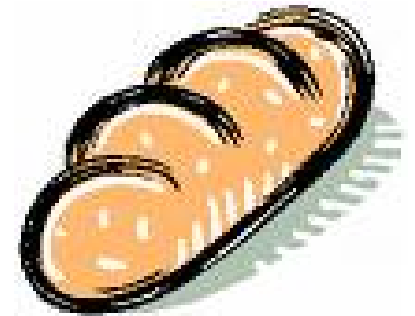
Before  
diagnosis

the future?

- Prevention
- Screening
- Vaccination
  
- Early diagnosis= improved outcome?
- Cancer switch?
- Angiogenic switch?
- Metastatic switch?



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# Diagnosis

- diagnostic tools MRI, PET-CT
- prognostic markers - risk grouping-  
therapeutic targets
- biobanking
- registration
- information/support

# Biological prognostic markers

## Neuroblastoma

- MYCN –ampl.
- 17q+
- Structural aberrations
- TRK A mRNA expr

## CNS tumors (Mb)

- $\beta$ -catenin (IHC)
- C-myc mRNAexpr
- TRK C mRNAexpr

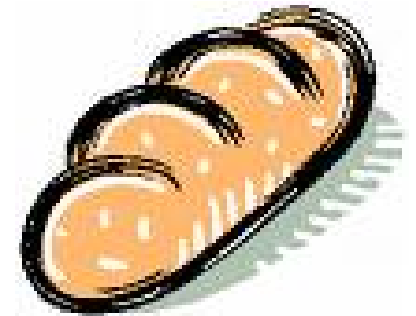
the future?

# Diagnosis

- Tumor heterogeneity
- Genetic profiling of individual tumors
- Non-invasive investigations
- Bioinformatics



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# Treatment

- Surgery, radiotherapy, chemotherapy immunotherapy
- New agents
- pharmacokinetics/ drug delivery
- toxicity
- supportive therapy
- clinical multicenter studies

# New agents

Tyrosine kinase inhibition

Histone deacetylation/DNA methylators

Growth factor inhibition

Angiogenesis inhibition

Vitamins

# New agents/methods

- Proton radiotherapy
- IMRT
  
- Radiotherapy quality assurance



# Treatment

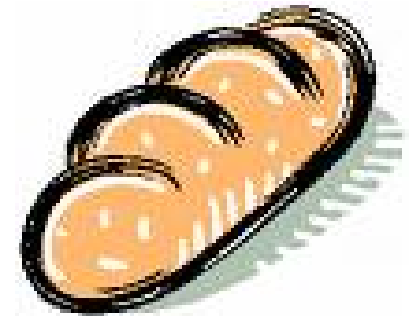
the future?

- Targeted therapy
- New methods of drug delivery
- In vitro drug testing
- Reliable surrogate markers
- Individual toxicity profile





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# Follow up-rehabilitation

- follow up data collection
- school/ work adaptation
- maintain/regain function
- coping
- achieving independence
  
- patient education

# Follow-up/ rehabili- tation

the future?

- radiotherapy sequele
- "chemobrain"
- prevention of brain damage
  
- coping



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