

Second international workshop on interim PET, Menton, April 8-9th 2010

Qualitative or quantitative analysis for NHL and HL

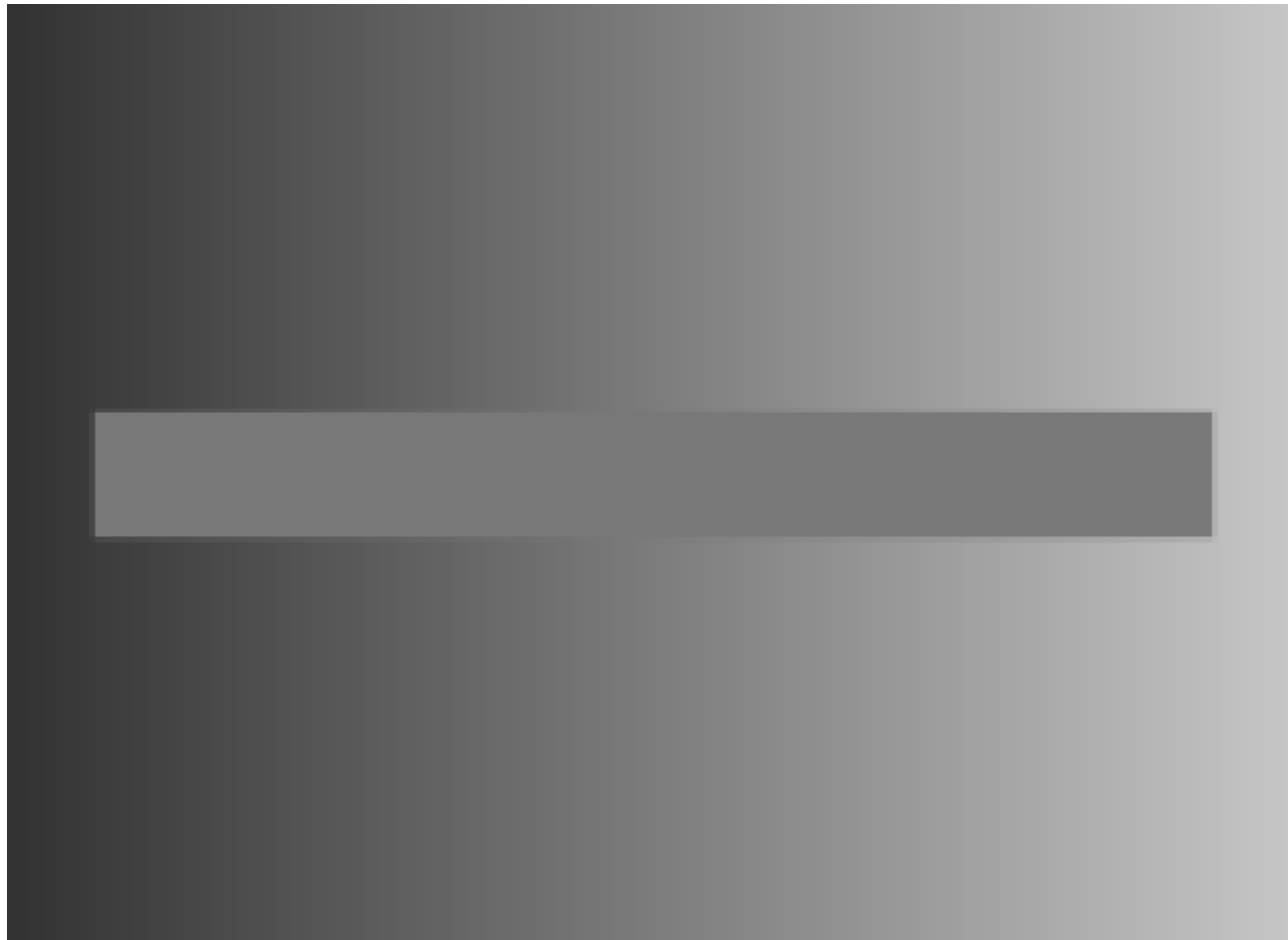
Michel Meignan- Alberto Biggi

AP-HP, CHU Henri Mondor

AO Santa Croce e Carle

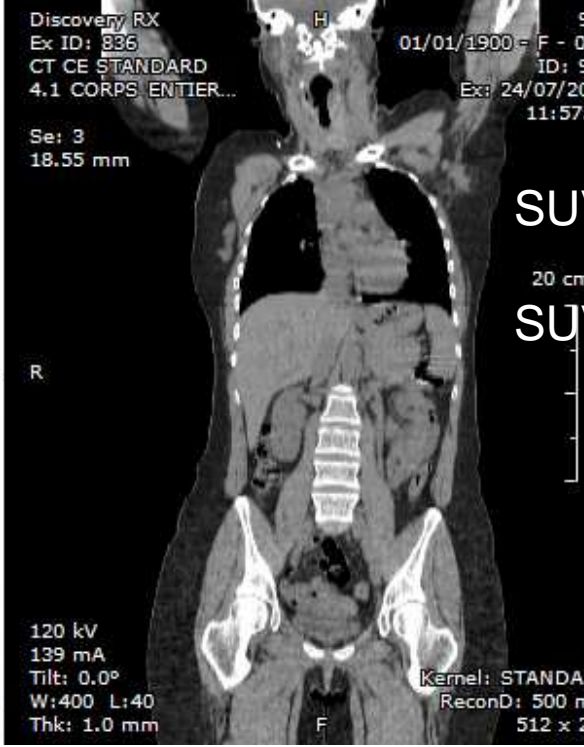
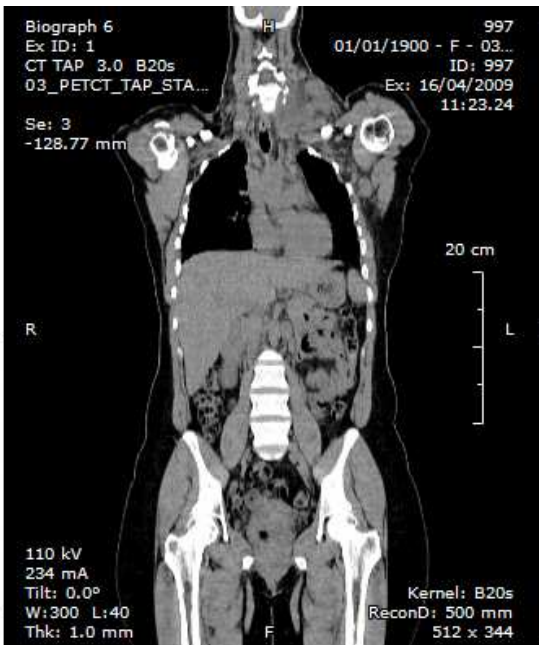
Créteil-France, Cuneo-Italy





Limits of the visual analysis

- Visual system is sensitive to **differences in contrast** and **not** to differences in intensity
- Receptive field organization of the retinal ganglion cell neurons
- Perception of the different shades of gray depends on their background

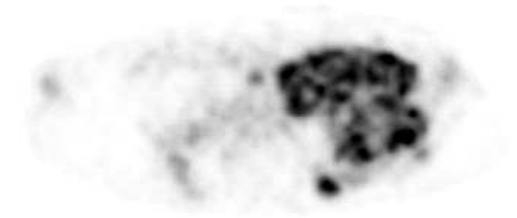
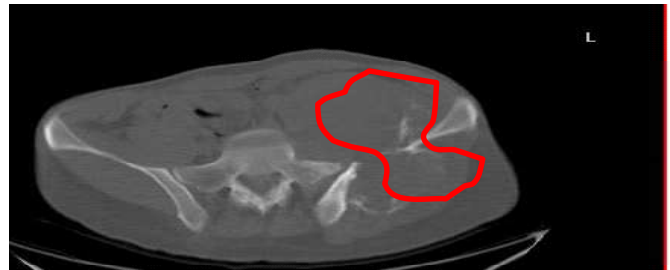


$SUV_{Tum} = 2.5$

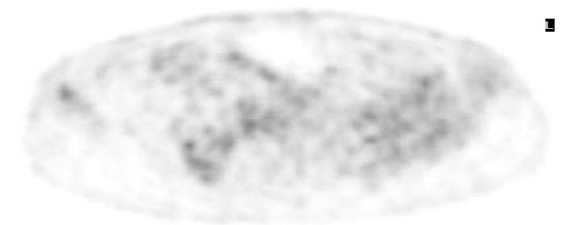
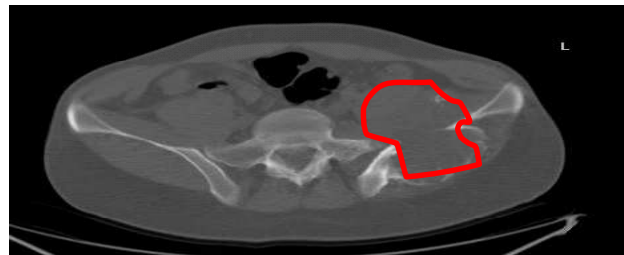
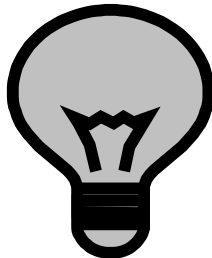
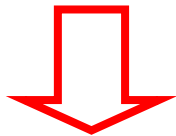
$SUV_{Liver} = 3.4$

Hodgkin's Lymphoma

PET 0
Disease onset



PET 2
After 2 ABVD



Chemotherapy switches off the paracrine and autocrine loop of CK secretion by RS and accessory cells

Qualitative and/or quantitative

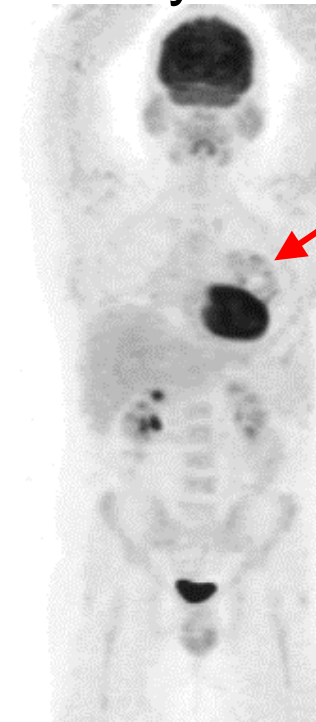
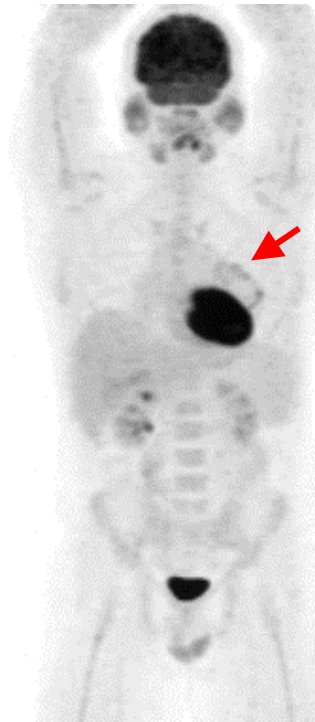
baseline

4 cycles
BEACOPP

6 cycles

end treat.
8 cycles

relapse
3 mo



SUV_{max} = **11,0**

SUV_{max} = **4,0**
(↘ 64%)

SUV_{max} = **3,8**
Biopsy : necrosis

SUV_{max} = **3,9**

SUV_{max} = **6,9**

27 y-old patient
Hodgkin's lymphoma, stage 4 (lung)

May 08

Aug 08

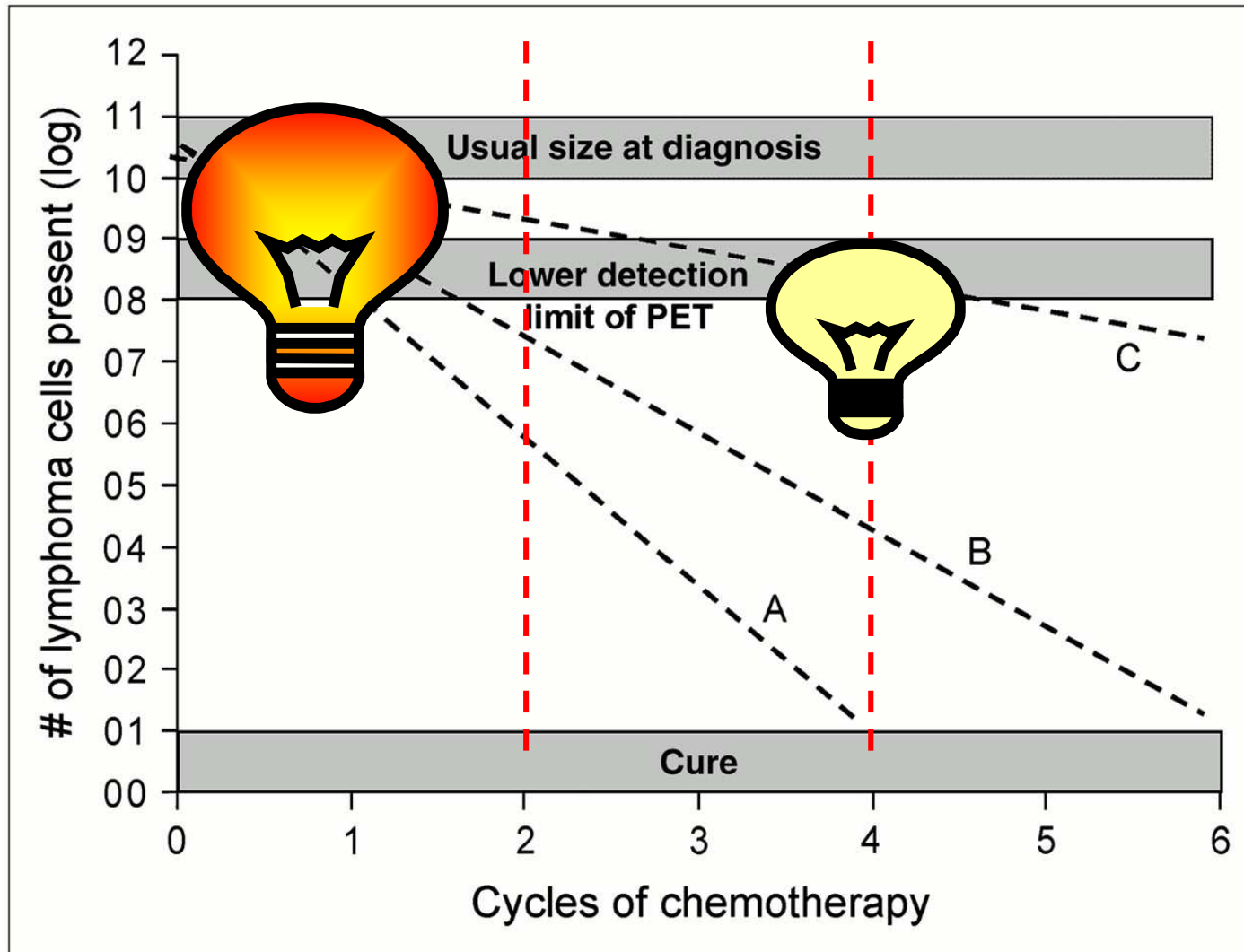
Oct 08

Dec 08

Mar 09

Interim PET in LNH

Dynamic evaluation



High interobserver variability

ECOG3404: interim PET after 3 RCHOP cycles LNH

Horning et al. *Blood* 2009;on line

- Criteria: ECOG/London
- 3 experts
- 38 interim scans

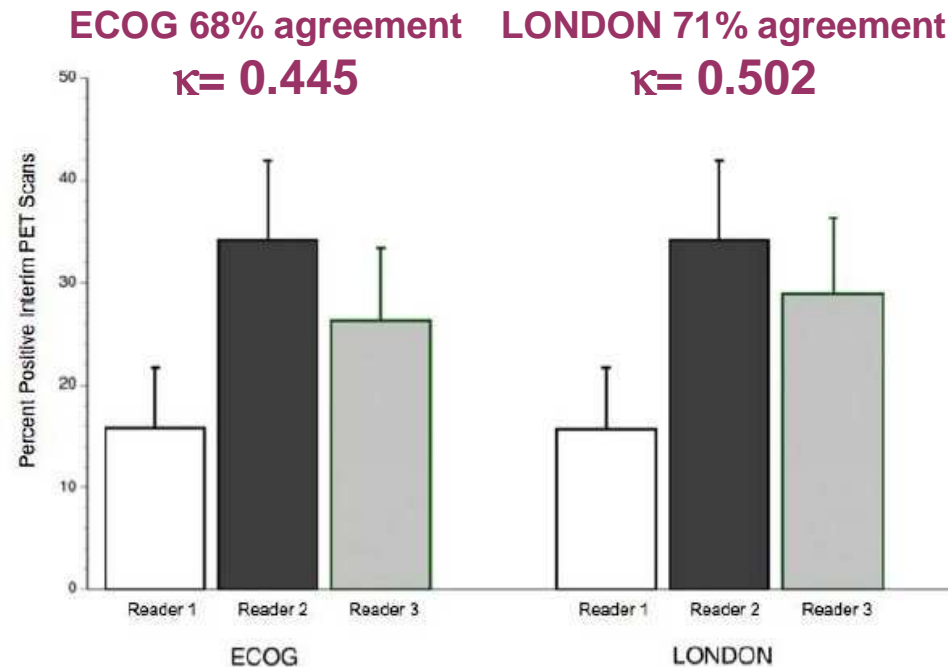
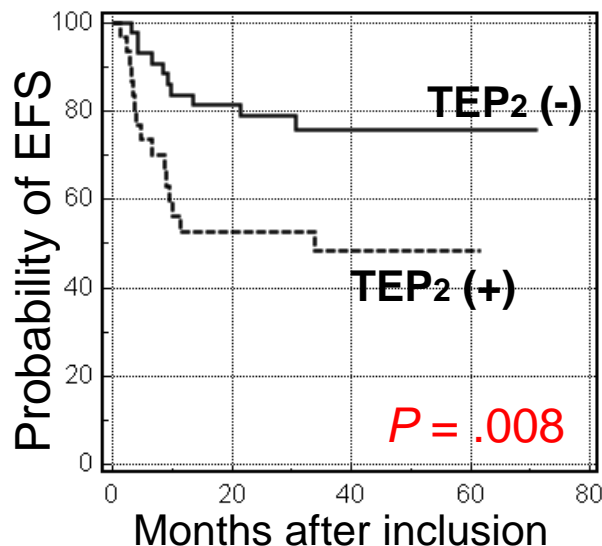


Figure 1: Proportion of interim-PET cases interpreted as positive by reader, according to the ECOG and London criteria (see text). Error bar indicates one standard error for the proportion.

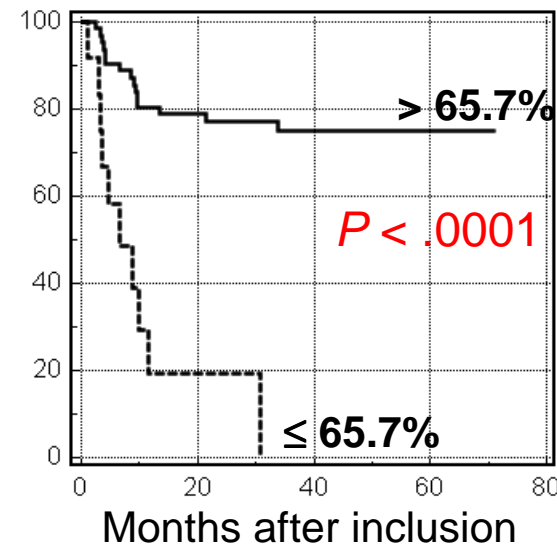
Visual and SUV analysis

Early response assessment (2 cycles), n=92 pts

Visual Analysis
(positive or negative)



SUV Analysis
(ΔSUV_{max} PET₀/PET₂)



- Decreases the number of false positive studies
- 14/17 FP patients reclassified with ΔSUV_{max}
- **2 cycles: ΔSUV performs better than visual**
- **Robust and objective index for multicenter trials**

Should we resist to the temptation of the SUV analysis at least in NHL?



Odysseus and the Sirens. Detail from an Attic red-figured stamnos, ca. 480-470 BC. From Vulci