HEADACHE
Eye – window to the brain
Does Retinal Examination improve the diagnosis and management of patients with headache?
Critical Info from Fundus Exam

NLP

LP
Do you check?

1850:
• Hermann von Helmholtz
• Inventor of the ophthalmoscope
... not easy for everyone

- Limited training
- Difficult without pupilllary dilation
- Inability to recognize the findings when observed

Implementation and Utility of Non-mydriatic Fundus Photography in the Emergency Department

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Non-mydriatic fundus photography

- Easy for non-ophthalmic trained individuals to perform
- No pupillary dilation
- Able to take quality photographs of the posterior pole
The camera is easy to use

Experienced professional photographer in a dimly lit room with the Zeiss FF4 and a dilated patient

A nurse practitioner after 10 minutes of training in a lighted room with the Kowa α-D and an undilated patient
Phase 1 conclusions

- Ophthalmoscopy was performed infrequently and poorly by ED MDs.
- Photography was easy to do in the ED and resulted in 12% critical disposition changing dx.

• Difference in proportion of ocular fundus abnormalities identified during the routine course of clinical care in the emergency department (e.g., including consultation) depending on whether ocular fundus photographs were available or not.
Secondary Objectives

- Difference in proportion of ocular fundus abnormalities identified by emergency department physicians who had access to photographs vs. those who did not (and who likely only had access to direct ophthalmoscopy if used).
- Difference in number and type of neuroimaging studies, procedures (particularly lumbar puncture), and consultations performed between the experimental conditions.
- Time to emergency department revisit, admission, or death.
• Headache - non-mydriatic fundus photography
• Photographs uploaded to a centralized, web-based server – randomization provided on screen
• MD randomized to view or not prior to questionnaire
• Questionnaire about the final diagnosis and disposition
• Participating physicians will receive training in recognizing fundus findings of relevance
Why focus on the ED?

- Patients go there with acute problems
- No ophthalmologist in ED
- Pupillary dilation time consuming in ED
- Studies of headache management:
  - Direct ophthalmoscopy is documented in ED only 37-48% of time (overestimate?)