Introduction
A cerebral aneurysm is a localized dilation of a cerebral artery. Formation is caused by a weakened vessel wall, mediated by hemodynamical interactions with vessel wall biology. The major danger of an aneurysm is rupturing. Risk of rupture could possibly be assessed from hemodynamical parameters by Computational Fluid Dynamics (CFD) models.

Objective
The first aim of this study is to validate CFD models. Second, patient-specific flow boundary conditions are estimated from X-ray cines for the CFD models.

Methods
Particle Image Velocimetry (PIV) is used for the validation of CFD simulations in idealized geometries. Also, the influence of an injection is measured with PIV. To estimate inflow an X-ray Video Densitometry (VD) algorithm is improved using a band filter based on the heart rate (Fig. 2).

Results
PIV and CFD flow patterns correspond for steady flow (Fig. 3). Moreover, an injection disturbs flow patterns depending on the geometry. The improved VD algorithm estimates flow accurately at small Field of View sizes (Fig. 4).

Discussion
Pulsatile flow PIV measurements are obtained for further validation of CFD models. The improved VD algorithm to obtain patient-specific boundary conditions is promising but immature. More parameter studies are necessary to define a valid range in terms of mean velocity and Field of View size.