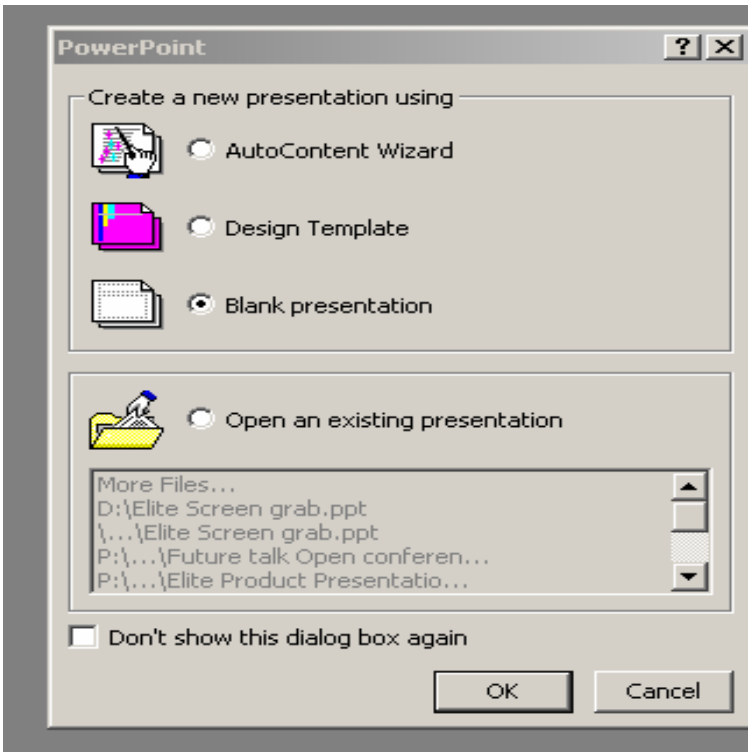
SMRT DEADLINE FOR ELECTRONIC POSTERS: MARCH 13, 2006
E-Mail as a pdf file attachment directly to: jennifer@ismrm.org

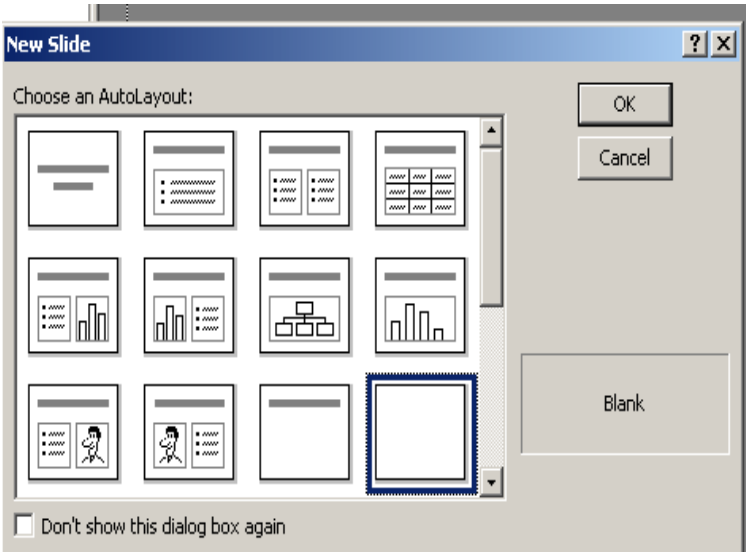
Instructions for making a pdf. file from Powerpoint

Theses instructions are designed for PC's using Microsoft.
However, they should apply to all Mac users as well.

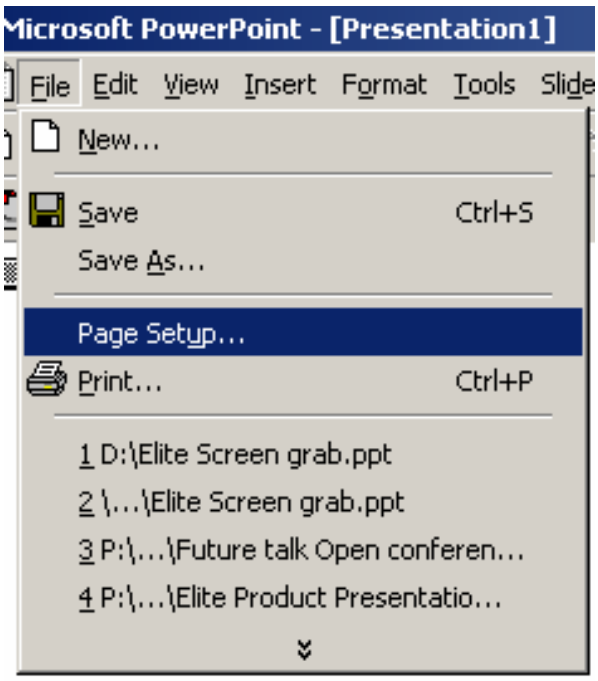
•Open a new PowerPoint presentation and select a blank presentation.

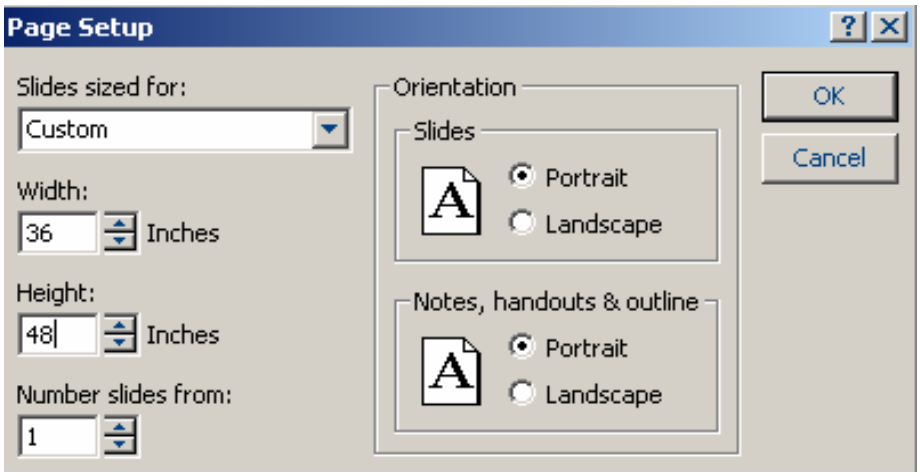


•After selecting Blank Presentation, choose an auto layout without title:



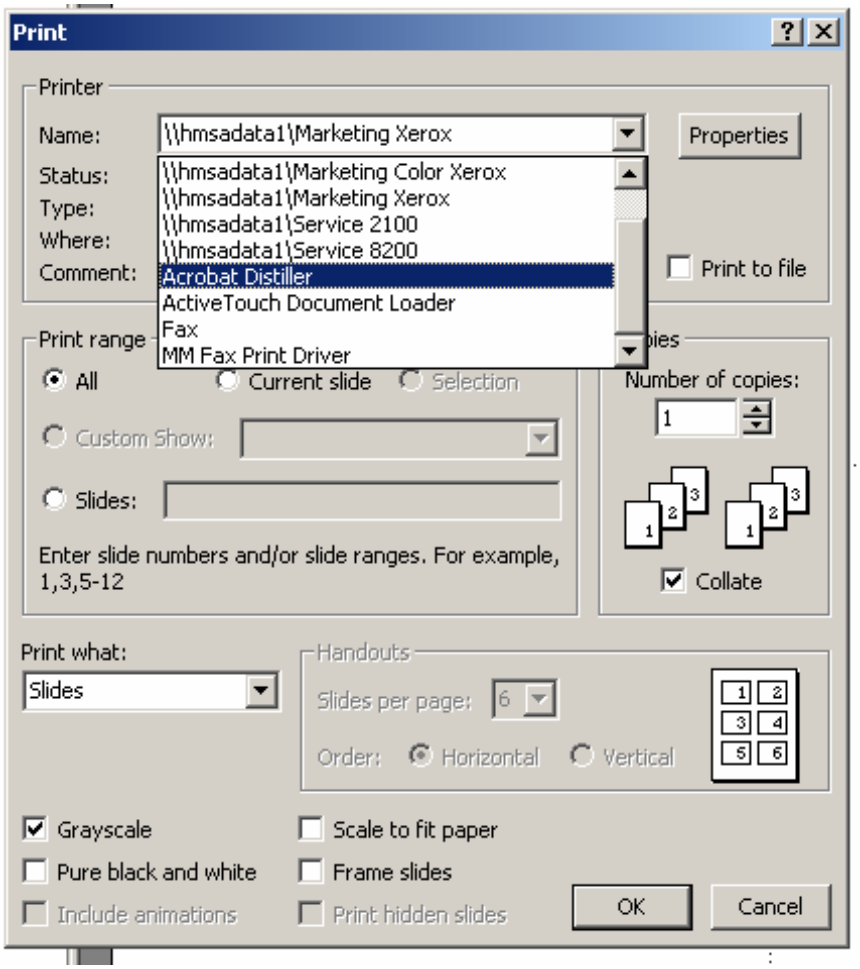
•After the PowerPoint slide opens up, click on File to get to **Page Setup**:





•Be sure to select **custom** for slide size, choose the appropriate orientation, horizontal or vertical and choose the actual dimensions of your poster (**48”x 48”, 1.2 m x 1.2 m or smaller 36” x 48”**). This way when the poster is printed up it will be accurate and proportional. Also, be sure *all* the work is done in *one* slide.

•To make a PDF file, go to the print menu, and then scroll down and select **Acrobat Distiller**- this converts a regular file into one with the pdf. extension.



Please see attached Sample of pdf poster file……..

Case Report: Clinical Use of Susceptibility Weighted MR Venograph

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Introduction:

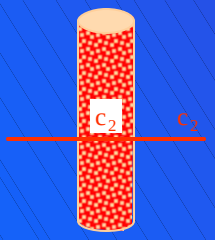
The MR-Venograph (MRV) [1, 2] a technique based on blood oxygenation rather than flow, can delineate relatively small venous structures in the human brain. This is particularly effective at high fields (such as 3T), where the T2* of venous blood is considerably less than that of cortical tissue.

Here we report a patient with intractable epilepsy referred for whole brain MR-Venograph scans prior to surgical intervention. Fiducial markers were used to coordinate the MRV with other imaging techniques such as a Magneto-encephalography (MEG) scans. The research scans were intended to identify and further define brain lesions, as indicated by abnormal blood pooling or vascular density, that may contribute to and produce epileptic foci.

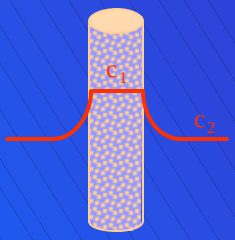
Methods: Subject and scan parameters

Study Particulars		Scan Parameters	
Subject	Male, 29, Right Handed	***Pulse Sequence***	3D SPGR with GMN
Scanner	General Electric Medical Systems	***Scan Plane***	Axial
Field Strength	3T/90cm, whole body gradient inset 40mT/m, slew rate 150 T/m/s	***Options***	GMN, Phase Maps
Software	Signa VH/i	***TR***	50 ms
Coil	Medical Advances, Inc. transmit/receive birdcage	***TE***	30 ms
Immobilization	Six-liter fill (Vac-u-Fix)	***TI***	N/A
		Flip Angle	20
Fiducial Markers	IZI Medical Products		
		Bandwidth	16 kHz
		FOV	24 x 24 cm
		Thickness/Skip	1.1mm / skip 0
Total Scan Time For MRV	***27.2 minutes for whole brain coverage***	***Matrix***	512 x 256
		NEX	1

Red blood cells



Oxygenated blood



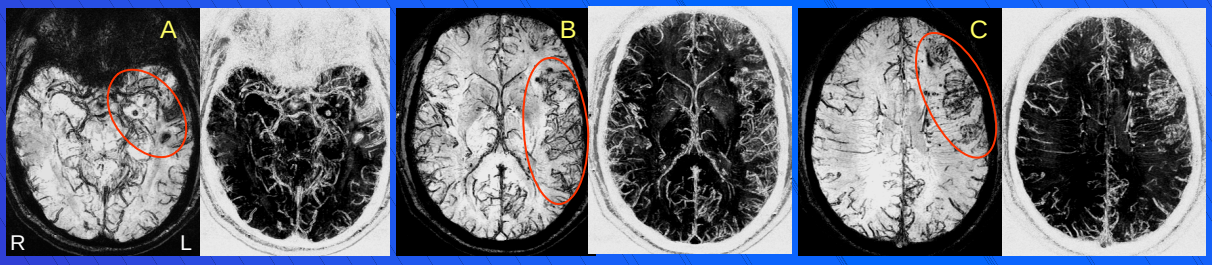
Deoxygenated blood (vein)

Methods:

Upon completion of the scan, the images were exported to a LINUX workstation for post-processing with Analysis of Functional Neuro-Imaging (AFNI) [3] software. The minimum intensity projection (mIP) post-processing slabs varied across 4-5 slices, depending on physician preference.

Results:

The cerebral venous architecture is clearly visualized. Noted on the susceptibility-weighted BOLD MR venogram (MRV), were several petechial hemorrhages possibly from an occult venous stenosis, thrombosis or an AV fistula. This condition may represent cerebral venous hypertension. The MRV technique highlighted increased vascular density and multiple cavernous angiomas of the left cerebral hemisphere (**B**,**C**), including a previously undetected cavernous angioma of the medial temporal lobe (**A**). While this research scan did not immediately alter the surgical approach, the neurosurgeon discovered a possible secondary source of epileptic foci.



Minimum Intensity Projections (mIP) Projections = 4 X (1.1 mm) slices = 4.4 mm slabs
Images are oriented in standard radiographic convention
Normal and reverse contrast shown at the locations mentioned above

Discussion:

The MR Venograph technique exploiting the bulk susceptibility difference between venous blood and the surrounding tissues is particularly effective at imaging vessels that are even smaller than the voxel dimension and which have flow velocities too slow to image with more conventional angiographic techniques. The long scan time with a 3D SPGR sequence may limit standard clinical use however, parallel imaging techniques such as Sensitivity Encoding (SENSE) may reduce the imaging time necessary for MR Venograph acquisition. Algorithms are currently being developed to (**a**) fuse these 3D representations of veins with 3D mapping of cerebral function, (**b**) separate veins from other susceptibility perturbations of similar scale, and (**c**) image veins on the surface of the brain. MRV scans sensitively detect and visualize venous abnormalities of the brain and can provide clinically useful diagnostic and anatomical information without the use of ionizing radiation.

References:
[1] Reichenbach JR, et al. JCAT 2000, 24(6)
[2] Haacke M, et al. IAS 2002; 21:107-113
[3] Cox RW, Comput Biomed Res. 1996 Jun; 29(3):162-73

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