Course ID: CMEC34

Structural and functional magnetic resonance imaging in psychiatry

Course director: Stephen Lawrie

Teaching faculty: Stephen Lawrie, Andrew McIntosh, Fritz Henn

Educational Objectives: To familiarise attendees with the main techniques and study designs used in structural and functional MRI, to inform critical appraisal of such studies and to enable people to plan their own studies.

Course description:
Session 1: The physical basis of MRI, and common methodological problems associated with MRI (50 minutes). This session will concentrate on a general introduction to the physical basis of the MRI signal (e.g. nuclear resonance, BOLD signal), the methodological advantages of MRI (e.g. resolution, multiplanar imaging, repeat scans), and the potential limitations (cost, data management, image processing approaches, various artefacts) of the technique.

Session 2: Study design. This session will concentrate on the main types of study design used in MRI studies. This will involve a brief discussion of the general issues of study populations and types (case-control vs. cohort) and common inferential problems (chance, bias, confounding, medication effects etc), before considering specific imaging issues of automated versus manual analyses and resting versus activation studies.

Session 3: Critical appraisal of a paper using MRI. This session will involve the critical appraisal of a published study with reference to the above points covered in the previous sessions.

Target audience: Anyone wishing to develop a better understanding of MRI studies and possibly go on to design their own experiments.

Course level: Previous knowledge is not required.

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