Appendix 1 – Case Narratives	
Case	**Narratives**
#1	An early 20's female presented with psychosis and a generalized tonic-clonic seizure (Hospital Day (HD) 1). Workup included a lumbar puncture (LP) showing lymphocytic pleocytosis, brain magnetic resonance imaging (MRI) showing increased signal in the left insula and left frontal operculum, and electroencephalogram (EEG) showing right temporal lateralized periodic discharges (LPDs) with subsequent seizures. An ovarian teratoma was identified and removed (HD 10). Treatment was initiated with intravenous immunoglobulin IVIG and high dose intravenous (IV) methylprednisolone (HD 2) followed later by a course of plasmapheresis (HD 23). Anti-NMDAR antibody was detected in the CSF with titers of 1:160. Sedative and psychotropic medications included lorazepam, dexmedetomidine, zolpidem, amantadine and bromocriptine. Persistent catatonia (mutism, posturing) with malignant features (autonomic instability requiring intensive care) prompted electroconvulsive therapy (ECT) initiation (HD 26). She received ECT thrice weekly for 13 treatments followed by weekly treatments for 3 weeks. The patient showed resolution of all catatonic symptoms and resumed college coursework at four months, and at one year follow up was taking a full course load successfully with patient-reported mild deficits in attention.
#2	An early 30's female presented with headache, seizures, and psychosis. Subsequent evaluation demonstrated lymphocytic pleocytosis on LP, normal brain MRI, and left temporal seizures on EEG. Transvaginal ultrasound did not show any ovarian masses. Treatment was initiated with IV methylprednisolone (HD 8) and IVIG (HD 10), followed by rituximab (HD 15). Seizures were controlled with brivaracetam and valproic acid. CSF anti-NMDAR antibody titers resulted at 1:32. Sedative and psychotropic medications included lorazepam, zolpidem, quetiapine, olanzapine, memantine, trazodone and valproic acid. Due to persistent catatonic features with associated autonomic instability on 24 mg lorazepam total daily dose, ECT was initiated (HD 30), with thrice weekly treatments. Due to persistently short seizures during ECT and limited clinical improvement, ECT was stopped after 11 treatments. On discharge (HD 73) symptoms had improved sufficiently to return home with persistent cognitive impairments noted. At 8-month follow up with her neurologist, the patient reported being at her baseline with no residual symptoms.
#3	A late teens female presented with psychosis after initially experiencing confusion, ataxia, involuntary movements, cognitive impairment, mood lability and insomnia. Evaluation demonstrated lymphocytic pleocytosis on LP, normal brain MRI, and bifrontal epileptiform activity on EEG. No tumor was identified on body and pelvic imaging. Treatment was initiated with IV methylprednisolone (HD 3) and IVIG (HD 6), followed by plasmapheresis (HD 19-27), and rituximab (HD 21). Anti-NMDAR antibodies were positive in the serum and CSF, the latter not detected at 1:2 dilution. Sedative and psychotropic medications included lorazepam, zolpidem, memantine, trazodone, and dexmedetomidine. For persistent catatonia with autonomic instability despite high dose lorazepam (peak total daily dose of 61 mg), ECT was initiated (HD 18) thrice weekly for 23 treatments followed by a taper to monthly after discharge for a total of 38 treatments. With ECT initiation, autonomic instability rapidly resolved and mental status gradually improved allowing for lorazepam taper. Following discharge to home (HD 75) she showed ongoing "freezing" episodes felt to be consistent with catatonia, as well as slowed cognition at her 3-month follow-up with neurology. Neuropsychiatric testing completed 4 months after presentation revealed deficits in visual reasoning and memory, as well as processing speed. At 6 month follow up she had started undergraduate studies, and at 12 months was exceeding in coursework with patient-report of only mild deficits in time management skills.
#4	A late 30's female presented with clinical seizure accompanied by aphasia, agitation, and abnormal movements. Workup demonstrated lymphocytic pleocytosis on LP, a normal brain MRI, and diffuse slowing on EEG. Anti-NMDAR antibodies were detected in the serum and CSF, though titers were not reported. Ovarian teratoma was resected (HD 25). Treatment was initiated with IV methylprednisolone (HD 7), IVIG (HD 8), plasmapheresis (HD 18), cyclophosphamide (HD 22), repeat IVIG (HD 28), and rituximab (HD 31 and 47). Tracheostomy

	and percutaneous gastrostomy placement were required (HD 25). Sedative and psychotropic medications included lorazepam, clonazepam, quetiapine, olanzapine, phenobarbital, zolpidem, memantine, and baclofen. After persistent (>40 days) inability to wean from the ventilator due to agitation and abnormal repetitive movements without EEG evidence of seizure, the patient's clinical picture was felt to be most consistent with catatonia, prompting initiation of ECT (HD 68) to target catatonic symptoms. She was weaned from the ventilator after 3 ECT treatments and transferred from ICU after the 8th ECT treatment. Initial attempts to taper ECT failed due to recurrent agitation and a total of 24 treatments were completed. Tracheostomy was decannulated (HD 109) prior to discharge (HD 123) to acute rehabilitation, at which time she had persistent speech latency, mutism, and memory impairment. One month after discharge she was living with a partner and able to ambulate independently; additional follow up was not completed in our health system.
#5	A mid 20's female presented with psychosis and catatonia, following approximately 2 weeks of new-onset mania. She developed confusion, fluctuating alertness with agitation and somnolence, followed by progression to stupor with associated urinary retention and prominent dysautonomia. Workup was notable for lymphocytic pleocytosis in her CSF, a normal brain MRI, and delta brush on EEG. Treatment was initiated with IV methylprednisolone and IVIG (HD 11), followed by rituximab (HD 20 and 34). Anti-NMDAR antibodies were detected in the CSF at a titer of 1:128. An ovarian teratoma was identified and resected (HD 14). Sedative and psychotropic medications included lorazepam, zolpidem, memantine, amantadine, and dexmedetomidine. Due to severe dysautonomia, including central hypopnea and sinus pauses, ECT was initiated (HD 19) in concert with high-dose lorazepam (peak dose 82mg daily). Twice daily ECT treatments (1-8) were started, followed by daily ECT for treatments 9-18. Treatments 19-31 were thrice weekly, then tapered to weekly or less (total of 38). After ECT treatments caregivers (family and staff) noted improvements in attention and social engagement, such that she was able to ambulate with physical therapy while in the ICU on >70mg lorazepam total daily dose. She was discharged from hospital to acute rehab (HD 72). At 6 month follow up the patient had resumed full time employment and master's degree coursework.
#6	A mid 20's male presented with seizures, associated with postictal confusion and visual hallucinations, preceded by a few days of diminished appetite. CSF demonstrated lymphocytic pleocytosis, and brain MRI showed T2/FLAIR signal abnormality in the right hippocampus and the right temporal lobe. EEG showed right hemispheric slowing and seizure activity with rapid generalization, as well as extreme delta brush. Methylprednisolone and IVIG were initiated (approximately HD 8) at an outside institution. Other immunotherapy included plasmapheresis (HD 21), followed by rituximab (HD 39, and 2 monthly doses), and tocilizumab (HD 106). Anti-NMDAR antibody was detected in the CSF at a titer of >=1:1024. No tumor was identified. Surgical tracheostomy and gastrostomy tubes were placed (HD 15). Sedative and psychotropic medications included lorazepam, midazolam, zolpidem, memantine, amantadine, bromocriptine, and propofol. Despite continuous propofol infusion and very high doses of lorazepam, the patient continued to exhibit variable agitation with posturing and dysautonomia, prompting initiation of ECT (HD 46) to target catatonic symptoms at a frequency of 4 times weekly with notable short periods of improved alertness and decreased sedation needs. After 13 treatments ECT was held for 2 weeks to attempt propofol wean in favor of lorazepam (peak 152 mg total daily dose). ECT was resumed for an additional 14 sessions without significant benefit for agitation and dysautonomia. ECT was held (last on HD 88) due to fever and leukocytosis. Subsequent EEG (HD 89) revealed status epilepticus treated with midazolam and propofol infusions in addition to levetiracetam and valproate. The patient remained unable to wean from sedation or ventilator dependence. Due to lack of clinical improvement, an event of asystolic arrest requiring resuscitation (HD 102), and development of disseminated *Mycobacterium abscessus* infection, care was transitioned to comfort measures followed by death (HD 137).
#7	A mid 20's female presented with a seizure following 5 days of acute anxiety, insomnia, and auditory hallucinations. Workup revealed CSF lymphocytic pleocytosis, a normal brain MRI, and left temporal epileptiform discharges and seizures, diffuse slowing, and generalized periodic discharges on EEG. Treatment was initiated with IV methylprednisolone and IVIG (HD 2), followed by rituximab (HD 23, HD 38, HD 68). An ovarian teratoma was identified and

	resected (HD 3). CSF anti-NMDAR antibodies were detected at a titer of 1:64. Sedative and psychotropic medications included lorazepam, midazolam, zolpidem, amantadine, bromocriptine, and dexmedetomidine. Due to refractory agitation and dysautonomia, with exam findings consistent with catatonia, ECT was initiated (HD 4). The patient required intubation (HD 7) for airway protection in the context of clinical seizure activity; followed by eventual tracheostomy (HD 15) and percutaneous gastrostomy tube placements (HD 26). ECT was continued daily for 9 treatments (HD 4-12), with 2 treatments performed on HD12 due to severe dysautonomia resulting in high fevers. Treatments 10-31 were continued on a thrice weekly schedule, with clinical teams noting improvement in dysautonomia and mental status with treatments that then recurred with breaks in treatment. Treatments 32-38 were tapered to weekly and then stopped. Tracheostomy was decannulated HD 61, and she was discharged to acute rehabilitation HD 72, eventually able to return home with her family's support. At one year follow up she was independent in activities of daily living (ADLs) but had continued cognitive symptoms. Self-assessment by the patient noted that she was at "70-80% of baseline".
#8	A late 20's female presented with behavioral changes and disorientation associated with 3 days of headache and nausea. Workup included an LP with three nucleated cells, a normal brain MRI, and EEG showing initial right temporal rhythmic delta epileptiform activity and later left temporal seizure activity. No tumors were discovered on CT and ultrasound imaging. Due to high clinical concern for autoimmune encephalitis, treatment was initiated with methylprednisolone (HD3), IVIG (HD 10), and rituximab (HD 15 and 29). Serum anti-NMDAR antibodies were identified at a low titer and CSF antibody testing was not completed. Sedative and psychotropic medications included lorazepam, zolpidem, amantadine, quetiapine, valproic acid, guanfacine, and dexmedetomidine. Due to persistent dysautonomia and catatonia, including mutism and poor oral intake, despite a maximum dose of lorazepam 104mg total daily dose, ECT was initiated on HD 16, with daily treatments for the first 12 treatments, followed by thrice weekly through treatment 44, with a taper to weekly for total of 48 treatments. She was discharged home on HD 136. At the time of discharge, she was able to ambulate but needed help with independent activities of daily living (iADLs). At her 3-month follow up she was managing iADLs, with ongoing short term memory impairments.