

# PANS/PANDAS Evaluation & Treatment Algorithm

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## EVALUATION:

**History**, including assessment of presenting symptoms (behavioral, cognitive, emotional and somatic abnormalities), psychosocial stressors and environmental exposures (including Group A streptococci, mycoplasma and other infections). Family history of autoimmune disorders.

Was symptom onset abrupt or gradual? (Asking the child may reveal a gradual onset that was perceived as sudden by parents because child had been hiding symptoms.) PANS also may occur in children with neurodevelopmental disorders, including autism, and with similarly abrupt onset.

**Physical exam, including assessment of throat and perianal region for signs of strep infection.**

**Laboratory** work up should be determined by the child's clinical presentation (e.g., U/A and culture if child has urinary urgency, frequency, enuresis). All children should have a throat culture (rapid strep test can be used, but overnight culture obtained if RS is negative) and perirectal culture/rapid strep.

**A diagnosis of PANS is made when the child has:**

1. Abrupt onset of obsessive-compulsive symptoms or eating restrictions.
2. Concomitant onset of at least two of the following:
  - anxiety (particularly separation anxiety)
  - emotional lability and/or depression
  - irritability, aggression and/or oppositional behaviors
  - deterioration in school performance
  - sensory or motor abnormalities (e.g. tics, choreiform movements)
  - somatic signs and symptoms (particularly sleep disturbances, enuresis, and urinary urgency or frequency)
3. The acute-onset symptoms are not better explained by other neurological or medical disorders. For Differential Diagnosis, see Chang et al, J Child Adol Psychopharm 2015; 25(1): 3-13. <https://www.ncbi.nlm.nih.gov/pubmed/25325534>

For further information on the PANS/PANDAS history, physical exam and laboratory evaluation, please consult the JCAP guidelines (above) or the "Frequently Asked Questions" section of the NIMH PANS/PANDAS website (<https://www.nimh.nih.gov/health/publications/pandas/index.shtml>).

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## TREATMENT:

► **Prescribe one month course of antibiotics (JCAP reference):**

1. Amoxicillin 40mg / kg\* rounded up and then divided Q12 hrs
2. Cephalexin 40mg/kg \* rounded up and then divided Q12 hrs
3. Augmentin 40mg/kg\* rounded up and then divided Q12 hrs
4. Azithromycin 12mg/kg\* QD - consider EKG prior to treatment to rule out prolonged QTc.  
\* or max dose

Use of probiotics may decrease GI side effects.

► **Refer to child psychiatrist, who may recommend medications, behavioral therapy, and parent skills training.**

► **Schedule follow-up appointment in one to two weeks.**

► **At follow-up evaluation:**

**If clinical improvement in all settings:**

- Continue current treatment and schedule follow-up appointment 3 - 5 days after end of antibiotic treatment

**If minimal or no clinical improvement:**

- Continue antibiotic therapy
- Start anti-inflammatory therapy (choice depends on symptom severity, see reference below)  
Ibuprofen 10mg / kg Q8hrs x 5 days **or**  
Prednisone 2mg / kg up to adult dosing QD x 5 days
- Ensure patient is receiving psychiatric/psychological treatment
- Consider referral to specialist (i.e. pediatric immunologist, neurologist, or developmental pediatrician) for further evaluation

► **Follow-up appointment at or around the time of completion of antibiotic (for all children):**

**If clinical improvement in all settings:**

- Explain that relapses are possible and stress the need for follow up if child has recurrence of symptoms for 3 or more days

**If insufficient improvement or child's symptoms have recurred:**

- Consider course of a different antibiotic
- If not used previously, start anti-inflammatory therapy with ibuprofen or prednisone
- Ensure child is receiving psychiatric/psychological treatment
- Refer to specialist (i.e. pediatric immunologist, neurologist or developmental pediatrician)

**If no clinical improvement:**

- Refer to specialist for further evaluation
- Provide support for child and family

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For further details on treatment of PANS/PANDAS, please see the Journal of Child & Adolescent Psychopharmacology Special Edition on PANS/PANDAS, 2017.

Overview of treatment of Pediatric Acute-Onset Neuropsychiatric Syndrome.  
J Child Adolesc Psychopharmacol (JCAP). 2017: 27:566-573  
<https://www.ncbi.nlm.nih.gov/pubmed/28722464>

Part I-Psychiatric and behavioral interventions. JCAP. 2017: 27:562-565  
<https://www.ncbi.nlm.nih.gov/pubmed/28722481>

Part II – Use of immunomodulatory therapies. JCAP. 2017: 27:566-573  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5610394/>

Part III – Treatment and prevention of infections. JCAP. 2017: 27:594-606  
<https://www.liebertpub.com/doi/pdf/10.1089/cap.2016.0151>