

## Juvenile Idiopathic Arthritis Case Study

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Elizabeth is an 8 year-old Hispanic girl, currently in the 3<sup>rd</sup> grade. She loves playing soccer, singing and dancing. She has 2 healthy siblings and working parents, both of whom speak a little English, but communicate best in Spanish. Last year she started to have “growing pains”, feeling stiff and uncomfortable in the mornings along with periodic aches and pains in her knees, elbows and hands.

After several months of this, Elizabeth’s parents noticed that her knee and elbow were often swollen and warm, and she was sometimes limping. She could not open a bottle of water, was having difficulty sitting on the floor, and was often unable to fully participate in physical education at school. Last season, she sat out at least half of every soccer game due to pain, and was limping too much to play soccer this season. This worried her parents, and they brought her to see the pediatrician.

Elizabeth's pediatrician saw her for an appointment and went over the families concerns. His physical exam noted that Elizabeth had swelling in both her knees, right ankle, both elbows and her hand seemed puffy. He decided to draw some labs and get some x-rays. Elizabeth's x-rays showed no signs of fracture or erosions. Her labs showed a normal complete blood count (CBC) but positive [antinuclear antibodies \(ANA\)](#) at 1:320, [rheumatoid factor](#) negative, [eosinophil sedimentation rate \(ESR\)](#) of 66 ( Normal: <20) and [c-reactive protein \(CRP\)](#) of 2.8 ( Normal: < 0.5). This indicated inflammation in her body as well as some auto-immune antibodies. After reviewing this information with the parents, the pediatrician recommended referral to a pediatric rheumatologist for further workup and diagnosis. Elizabeth was scheduled for a visit with a pediatric [rheumatologist](#) within the next 2-3 weeks.

When Elizabeth arrived at the pediatric rheumatologist office for her appointment she was greeted by a [certified medical assistant \(CMA\)](#), who took Elizabeth's height, weight and vital signs and took her to an exam room. The rheumatologist greeted the family and determined that an interpreter was needed to communicate effectively. He requested and was able to get an interpreter for communication during the office visit. While examining Elizabeth, she asked the family questions about how long she was having symptoms. Mom stated that they first started to notice her symptoms during soccer last fall when she would sit out of games due to pain. They also noted that when she got up in the morning she walked like an old lady. Elizabeth said she had been feeling stiff and achy for a while now, but it got worse when she tried to run or kick a ball. She also reported pain with writing in school, stating that her

fingers got sore and she had to stop frequently due to pain. The family reported that mom had a sister with Lupus.

On exam the rheumatologist found swelling in her right ankle with decreased range of motion, swelling in both knees, swelling in both elbows with flexion contractures, and swelling in multiple MCPs and PIPs of both hands. She had no hair thinning, rashes, oral ulcers, bleeding or bruising. The remainder of her exam was normal. The rheumatologist explained to the family that based on labs results and clinical findings, the most likely diagnosis was polyarticular [juvenile idiopathic arthritis](#). She recommended that Elizabeth start treatment with [methotrexate](#) and gave her a prescription for [naproxen](#) for pain and swelling. He explained the risks and benefits of these medications. Elizabeth was also prescribed folic acid to take the day after methotrexate to minimize side effects. The [Registered Nurse](#) (RN) met with Elizabeth and her parents to explain how to give the medication, and provided information and handouts in Spanish about juvenile idiopathic arthritis, methotrexate and naproxen. The rheumatologist also had additional labs drawn to rule out other connective tissue diseases, and to get baseline lab values prior to starting methotrexate. They will need to have monitoring labs done every 2-3 months to assess for drug toxicity to methotrexate. He also referred Elizabeth to an ophthalmologist for evaluation for [uveitis](#), a kind of arthritis in the eyes. A 1-month follow-up visit with the rheumatologist was scheduled.

Since the new diagnosis was something affecting Elizabeth and her family in many ways, the pediatric rheumatologist also asked for the clinic social worker to meet with her and her family. The [social worker](#) completed a brief bio-psycho-social and spiritual assessment, including previous function, school function, and overall family dynamics. Based on her findings, she provided some assistance with processing the diagnosis and how it may affect their lives. The social worker also provided information to the family about some [community resources](#) for general, psychosocial and spiritual support.

Due to multiple physical limitations noted on history and exam, the pediatric rheumatologist also referred Elizabeth for [physical therapy](#) (PT) and [occupational therapy](#) (OT) assessments and outpatient therapies. As therapists were available in this rheumatologist's clinic, she met with both the PT and OT for brief consultations. The PT screened Elizabeth's range of motion (ROM) and strength, walking, running, getting up from a chair and sitting on the floor. She also assessed her ability to move and participate in the home, extracurricular activities, and school. Recommendations from the PT included stretching and strengthening activities for her ankles and elbows, as well as some temporary modifications for extracurricular activities. The OT administered the Childhood Health Assessment Questionnaire (CHAQ), reviewed current performance in self-care, screened her hand strength and ROM, and assessed overall participation in daily activities including school. CHAQ scores for this visit indicated moderate disability, with a Disability Index of 1.6 (range 0-3, 0 = no disability). Given this and other findings, the OT recommended some modifications to her self-care routine including bathing in the mornings to reduce stiffness, and hand stretching and strengthening activities for home. She spent some time collaborating with Elizabeth and her family to figure out how to fit these new activities into her daily routine. The therapists reviewed general activity recommendations for children with JIA with both her and her parents. The importance of exercise and regular activity for children with JIA was emphasized by both the PT and OT. The

family was told that they should hear from their local outpatient PT and OT clinic within 1 month, and at that time will schedule an appointment.

Based on findings from the team, school recommendations were reviewed with Elizabeth and her family, and a school letter with these recommendations was generated. Recommendations included adaptive physical education, extra time and other adaptations for writing assignments, seating accommodations during classroom floor time activities, and initiation of a [504 plan](#). Elizabeth's family was instructed to bring the letter to the school office and to officially request a 504 plan for more permanent accommodations. Her family was also advised to speak to Elizabeth's teacher and school staff about her JIA and modifications needed to help her be successful at school.

### **Follow-up Visit**

Elizabeth and her family return to the pediatric rheumatologist after 1 month. Using an interpreter, Elizabeth and her family report that she is starting to feel better. She has less stiffness in the mornings, and less pain in her affected joints. Her limp is less frequent, and she can do a little bit of running around and playing with her friends. Her parents reported taking her to the ophthalmologist, and that her eyes were healthy. She completed initial physical and occupational therapy evaluations at a local therapy clinic, and is scheduled for weekly therapy sessions working on moving better and getting stronger.

On exam she still had swelling in her right ankle, but range of motion was improved. Her knees were also less swollen with knee caps visible. She gained range of motion in her elbows and her hand swelling improved as she can now make a fist. Her CHAQ scores for this visit indicated a Disability Index of 0.8. Baseline labs supported the diagnosis of polyarticular juvenile idiopathic arthritis, and other connective tissue disease lab tests were negative. Current lab results indicated some decreased inflammation in her body with ESR 30 (Normal <20) and CRP 1 (Normal < 0.5). Monitoring labs CBC, aspartate aminotransferase (AST), alanine transaminase (ALT), and albumin were all in the normal range, showing no drug toxicity. The rheumatologist recommended that Elizabeth continue taking the methotrexate, folic acid and naproxen prescribed at her initial visit. She also explained that her symptoms should continue to improve over the next few months. Elizabeth was scheduled for another follow-up visit in 2 months.

The social worker checked in with Elizabeth and her family, and determined that she was coping well with the new diagnosis. Elizabeth was feeling better overall, having less pain, and doing more than she was able prior to her last visit. Her parents were still very worried about their daughter and all of the things that go along with having a diagnosis of JIA. The social worker spent some time with the family to assist with processing these concerns, and recommended a local Spanish-language support group for children with arthritis and their families.

For school, Elizabeth's teacher started following the recommendations from the school letter generated at the first visit to the rheumatologist. Her parents requested the 504 plan, and the school started the process of creating and implementing it. Elizabeth had been evaluated by school therapists, and a date was set for a 504 Plan meeting.

ARP Practice Committee Member

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