

## PULSE EXPERIENTIAL TEAM ASSIGNMENT

<b>1. Title of your PULSE experiential assignment.</b> <i>Provide a creative and informative title.</i>
<b>Masthead:</b> Neuropulse <b>Title of Volume:</b> Neurology in Focus: Stiff Person Syndrome Uncovered
<b>2. Please summarize your PULSE experiential assignment (max 300 words).</b> <i>Provide a non-technical (lay) summary of your PULSE assignment. Prompts to think about: What is the topic? What is the format? Why did you choose this topic and format? The summary for lay audience is a brief and accessible summary of the assignment that is used to explain complex ideas, technical writing and scientific terms to people who do not have prior knowledge of the subject (e.g., high school science level). This summary should include the importance, impact, and content of your assignment to a broader audience.</i> <i>[Team 23 is an example of an informative lay summary.]</i>
For our PULSE assignment we created an informative magazine covering Stiff Person Syndrome (SPS) for students interested in pathology. As SPS is a rare condition lying at the intersection between the Immune Disorders and CNS content covered in PATH 3500, we wanted to raise awareness about it. We chose to format it as a magazine because it allowed for writing comprehensive articles, while also adding engaging elements like puzzles and patient testimony - beyond the constraints of an infographic. We explore SPS by introducing readers to key background information about the condition, resulting from the production of autoantibodies against an inhibitory neurotransmitter called GABA, causing muscle stiffness. Delving into the symptoms and etiology, we discuss further the mechanism which SPS presents itself and predispositional risk factors. Using ChatGPT, we generated an interview with a fictional patient living with SPS to help readers understand first hand what it would be like to live with the diagnosis. As found in other magazines, we included some puzzles, a celebrity story and informative graphics for fun and to get the reader to reflect on what they learned. The project also explores the various clinical classifications, including partial SPS and Progressive Encephalomyelitis with Rigidity and Myoclonus. We conclude with diagnostic tests for SPS, current treatments, and novel therapies in development. By providing information in an engaging and digestible format, we aimed to make this complex disorder more accessible.
<b>3. Provide up to 6 keywords relevant to your PULSE experiential assignment.</b> <i>3-6 keywords are ideal.</i>
Neurological Disorder Autoimmune Disease Stiff Person Syndrome (SPS) Patient Experience Diagnosis and treatment Medical research and advances
<b>4. Identify the course topic with which your PULSE assignment most aligns.</b> <i>Refer to the various topics outlined under 'Course content and Schedule' in the syllabus (e.g. Inflammation).</i>

The PULSE assignment on Stiff Person Syndrome (SPS) aligns most closely with the course topic "**Diseases of the Central Nervous System (CNS)**", as outlined in the syllabus (March 19–April 2, 2025).

Stiff Person Syndrome is a rare neurologic disorder characterized by progressive rigidity, muscle spasms, and heightened sensitivity to stimuli due to autoimmune-mediated dysfunction of the CNS. There are many pathologic features that classify this as an CNS dysregulation disorder: Autoantibodies against GAD65 which impair GABAergic neurotransmission in the spinal cord and brain, and hyperexcitability of motor neurons leading to involuntary stiffness and spasms.

While SPS also involves immune mechanisms (e.g., GAD65 autoimmunity), its primary clinical manifestations stem from CNS dysfunction.

### **5. What are the learning outcomes?**

*There should be a minimum of 2 learning outcomes for your assignments. For further information on learning outcomes, the Centre for Teaching and Learning offers information: <https://teaching.uwo.ca/curriculum/coursedesign/learning-outcomes.html>*

1. After reading our magazine, readers will be able to define Stiff Person Syndrome (SPS) and describe its main signs and symptoms, such as muscle stiffness and painful spasms.

2. After reading our magazine, readers will be able to identify the key diagnostic tests used to diagnose SPS and explain the role and process of each test such as the anti-GAD antibody test or EMG.

3. Successful readers will be able to apply their understanding of the triggers for muscle spasms in SPS (such as unexpected noises, touch, and strong emotional stress) to predict how Emily Carter might need to adjust her daily activities, drawing on examples from her testimonial in the magazine.

4. Successful readers will be able to analyze the differences and similarities between at least two clinical classifications of Stiff Person Syndrome (such as Classic SPS, Partial SPS, and PERM) by identifying the primary symptoms and the extent to which the body is affected for each, drawing upon the descriptions provided in the magazine

### **6. Why did the team select the chosen topic and the medium? How will the topic and medium of choice help learners?**

We chose Stiff Person Syndrome (SPS) as our focus for our pathology project because it is a rare, neuroimmunological autoimmune disorder that comes with unique diagnostic challenges and highlights the interplay between the nervous and immune systems. Personal stories like Emily Carter's and Celine Dion's recent revelation about her struggle with the disorder provide an important human element that makes the study of this disease more personable and comprehensible. The project bridges the

divide between research and the way medical information about pathology tends to be shared with professionals and the lay public, through the aesthetic of a "real-world" magazine. The inclusion of personal stories and celebrity involvement helps reinforce this link. Since we were looking to use something a bit more entertaining that contextualised accessible learning materials with in depth explanations, we picked a magazine as our medium. Through its multiple sections, headlines, and attractive visuals, the magazine format provides a comprehensive exploration of SPS, including its definition, epidemiology, diagnosis, clinical manifestations, experience with illness, and treatment. This multi-prong development style and inclusion of features like a "DID YOU KNOW?" section, sign and symptoms wheel and journey to diagnosis map help reader digest the information presented and allow for more varied learning style approaches ultimately ensuring understanding of learners new to the concept. Throughout the magazine there are also small tips/notes to aid readers understand important content that may be challenging to understand or remember. (ex. Pg 8) We also included a midpoint check in and crossword near the end of our magazine, allowing readers some time to challenge and test themselves to some of the most important information they have learnt through our magazine. This will give our reader the chance to do some active learning and understand how well they are comprehending our content.

**7. Did the team use an artificial intelligence (AI) technology tool? If so, which AI technology tool(s) did the team use? What other technology tools did the team use? Is the technology tool novel? Is the team using this technology tool in a novel fashion? If the team did not use technology tool, why did the team decide against using the technology tool(s)?**

*Please include details (e.g., for what purpose was the tool used for? Why was the tool the best tool to use for your assignment? Are there alternative tools that were considered?)*

Yes, the team did incorporate both AI and non-AI technology in the completion of this assignment.

#### **1. Artificial Intelligence (AI) Tools:**

- **DeepAI (Text Generation)**
  - Purpose: Used to generate vocabulary crossword puzzle clues for neurological terms related to Stiff Person Syndrome (SPS).
  - Why Chosen: Provided quick, structured, and medically accurate hints tailored to our topic.
  - Alternatives Considered: ChatGPT, Gemini (Google AI), and Claude AI were also explored, but DeepAI offered a balance of precision and ease of use.
- **Magic Media (AI Image Generation via Canva)**
  - Purpose: Created a custom illustration on page 3 of ,magazine to enhance visual engagement.
  - Why Chosen: Allowed for rapid iteration of stylized, medically themed images without copyright restrictions.
- **FreePik ( AI Image Generator)**

- Purpose: Generate images of a fictional patient for page 6-7, 12-13 of the magazine to enhance visual engagement.
- Why Chosen: Generate images of people without copyright restrictions.
- **Chat GPT**
  - Purpose: Used to generate different type of questions (matching + crossword) and also brainstorm ideas
  - Why Chosen: more intuitive and conversational compared to other AI formats making it ideal for brainstorming and problem solving

## 2. Non-AI Technology Tools:

- **Word-Puzzle Generation Website\*\*\***
  - Purpose: Grid design and word placement for the crossword puzzle.
  - Why Chosen: Familiarity and grid customization capabilities.
- **Canva**
  - Purpose: Layout and final design of the magazine for presentation.
  - Why Chosen: User-friendly templates for educational materials, and convenient collaboratively
- **Zotero**
  - Purpose: Citation generation and management
- **FlipBookPDF.net**
  - Purpose: Used to convert our PDF to a flipbook in order to give the illusion of a real magazine
  - Why Chosen: Compared to other options allows us to share the link of our magazine without a fee or expiration date

## 8. How is your PULSE experiential assignment innovative and/or novel?

*Describe what about the PULSE assignment is innovative/novel. Is there a particular component or content that is innovative/novel? How is it different from other content that already exists?*

Our PULSE assignment is innovative and novel through its creative reinterpretation of medical education materials. Rather than following the conventional format of academic reports or medical journals, we designed a lifestyle-inspired magazine that makes medical information about Stiff Person Syndrome (SPS) accessible and engaging. This unique approach breaks away from traditional medical presentations by incorporating creative visuals, layouts, and a conversational tone reminiscent of popular magazines like Vogue or GQ. The magazine format captures readers' attention but also humanizes the medical content, making it appealing to broader audiences.

A key innovative component is the incorporation of interactive elements, particularly our topic-specific crossword puzzle featuring neurological terms related to SPS. Unlike passive learning materials, this puzzle actively engages readers in reinforcing key concepts in a fun and memorable way.

Our project innovates through its patient-centered, multidisciplinary approach. While covering essential clinical facts about SPS, we also included the lived patient experience of managing symptoms in daily life through our mock-interview section and the patient journey map. This blend of medical and lifestyle content bridges the gap between reader and patient, fostering greater empathy and understanding. By

presenting SPS not just as a pathology but as a lived experience, our magazine offers a more holistic perspective rarely seen in standard medical education materials.

**9. If you used an AI tool, please copy and paste the prompt(s)/question(s) used along with the output(s)/answer(s) from the AI tool.**

*The response here is to allow others to replicate the team's work. If the prompts/outputs are lengthy (over 1 page), please attach it as a separate document and note below [Please see attached document].*

**\*\*See word document named “PULSE Team #19 - AI prompts/outputs.docx”**

**10. If you did not use an AI tool, please attach a copy of the team's notes to the assignment.**

*The response here is to allow others to observe the ‘behind the scenes’ team's work.*

Although our team had used AI tools, most of our assignment consisted of our own work. **\*\*Refer to word document named “PULSE Team #19 - Behind the Scenes.docx”** for a full look into our background work for our magazine.

**11. How did the team ensure the veracity of the information presented in the PULSE assignment?**

*The response should highlight how the team has ensured that the information presented in the assignment is evidence-based and not spreading misinformation. You should specifically mention which databases (if any) or textbook materials you used, and how you kept track of the sources/references for each claim. If AI provided you with false information, please describe how the team has fact-checked the AI response and the legitimate (scientific) sources you used. A reference document should be provided in the reference section (15. References) below. Please ensure to include in-text citations in your assignment where applicable.*

For the PULSE assignment, we took multiple steps to make sure that all of our information presented in our magazine was evidence-based and accurate to avoid misinformation. To do that, we made sure to use reputable sources from authoritative medical websites, government and institutional sources such as National Institute of Neurological Disorders and Stroke (NINDS), and peer-reviewed scientific articles. To check the validity of our article and journal sources used, we want to make sure that all of the journals used are not predatory, as some journals do not have the same standard of peer-review for accepting articles despite what they advertise. One way we ensured this is by checking if the journals used are indexed in DOAJ, NLM Catalog, or Master Journal List. If it is not indexed within these journal searching databases, then it is likely that the source is not reputable, and we would exclude that source. Another way we checked the validity of our sources is simply visiting the publication website, and checking the quality of the site (if it has poor website design, low quality, grammar/spelling mistakes, etc).

To ensure accuracy of the information used for our assignment, we tracked our sources by maintaining a shared document where we recorded all of our references for every claim included in our magazine, and crossed out any repeating or overlapping sources we have used for our final references.

For the interview with Emily Carter, we came up with a fake patient name and fed this to ChatGPT. As the interview explored surface level details, such as her feelings towards certain aspects of her life, we made sure that these sentiments appear to align with what someone with SPS might feel like (SPS). While her treatment was briefly mentioned such as GABA medications and IVIG therapy, these are indeed real SPS treatments mentioned in several sources that are cited throughout the magazine such as John Hopkins Medicine. The bestselling novel “Written in the Wind” served a completely fictional purpose (as no such book is authored by someone named Emily Carter) to humanize her and connect her with the audience.

**12. Write a meaningful team reflection about the PULSE session (max 250 words).**

*Prompts to help your team write the reflection: Were there any team/individual biases that surfaced when creating content for the assignment? Did the team implement any practices to ensure the content was equitable, diverse, and/or inclusive? How has the PULSE assignment helped with the team’s learning? If the team had to estimate, how long did the assignment take? What worked well for your team? What would the team do differently next time? What were the opportunities and challenges with creating the PULSE assignment to help others’ learning? Were there any barriers or limitations?*

Reflection: The SPS Magazine was challenging to put together, but even more an enriching experience. Our team sought to balance accurate, engaging, and inclusive content, all while remaining conscious of various biases and accessibility considerations. At first we identified a widespread lack of understanding of SPS and realized how important it would be to communicate both clearly and compassionately. In the spirit of equity and inclusivity, patient perspectives, clinical perspectives, and accessibility considerations were integrated. We selected language thoughtfully, emphasizing person-first language and not stigmatizing or overly clinical descriptors. We made our magazine visually accessible, using legible fonts and good contrast. Overall, the assignment came together over the course of about 9 weeks, as each person worked independently on their designated sections but also coming together once a week to discuss our progress and our next steps. Teamwork and clear communication: our biggest strengths which helped us divide work in a productive way. But I think our group could have used more regular, shorter check-ins to discuss any issues or ideas before we regrouped for another longer session. Completing this assignment helped us to understand SPS more but also how to generate accessible learning materials. Still, it taught us how to relay complicated topics to a lay audience and have them understand the complex of medicine. Moving ahead, we want to work more directly with people impacted by SPS to help lift their voices even further. Above all, this has brought us together as a team and reinforced the commitment to equitable health communication between us.

**13. Write the contributions of individual team members using unique initials.**

*Example: All team members contributed to the design of the prompts used in the technology tool, ChatGPT (GPT-3.5). T.K and T.K2 fact checked the information presented by ChatGPT using published literature on PubMed (PMID 29211319, 32477271). Y.Z finalized and formatted the final infographic and compiled the prompts and outputs. P.E was involved in...*

C.C.: Contributed suggestion of SPS as topic in pool from which it was randomly selected, researched etiology and pathogenesis of SPS, wrote and designed pages 3 & 4 of magazine, designed the front cover of magazine, formatted the crossword page & used DeepAI to generate the clues. For the template: questions 4 & 8, and parts of 7, 9 and 13.

C.T.: Researched the history, signs, symptoms, diagnosis and medical test for SPS. Wrote and designed the following pages 1-2 and 7-8 in the magazine. Designed and formatted the challenge corner on page 10, ChatGPT (GPT 4.5) to generate matching questions. Designed the crossword page (pg 15). Answered questions 5,6 & 12 and parts of 7, 9 and 13 on the pulse assignment template.

S.S.: Researched and wrote the treatment sections. Used ChatGPT (GPT 4.5) to generate the fictional patient interview. Designed and wrote pages 5-6, 11-12 and back cover. Answered questions 2 and 9 in the template.

S.P.: Researched, wrote, and designed the clinical classifications, new research and future findings, and prominent figures for SPS awareness sections of the magazine. Did question 11 and 3 for the PULSE template.

All members discussed and determined the key sections of the magazine.

## 15. References

Please provide a numbered reference list with Nature citation style. [Please feel free to use citation management software (i.e., citation manager; e.g., Zotero and Mendeley)]

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