

## ABO CLINICAL QUALITY IMPROVEMENT (QI) APPLICATION

### Topic

Quality Improvement Topic:	Reliability of Neuroimaging Studies
	Patients are seen for a variety of neuro-ophthalmic disorders & undergo neuroimaging. These scans are often interpreted by general radiologists without specific neuro-radiologic training. The QI project would be to review approximately 50 neuroimaging studies by neuroradiologists at an academic medical center to see if any abnormalities were overlooked and/or misinterpreted & if so, did this alter the diagnosis & management of the patient.
What is the reach of this QI activity?	National
Please explain/identify:	Depending on the results, the need for a second opinion on studies interpreted by general radiologists may need re-review by a neuro-radiologist.
Please identify the funding source(s) for this QI activity?	None required

### Project Description

1. Describe the quality gap or issue addressed by this activity. (Included in your response to this question should be a description of the resources that informed your decision to pursue this topic, a description of what the literature says about the issue you identified, and the rationale for choosing to address this clinical QI project.)	Are neuroimaging studies reliably interpreted by general radiologists?
2. Describe the specific aim(s) of this activity (explanation of the numeric goals and importance to your work processes and your organization).	Aim as above. Approximately 50 patients with suspected neuro-ophthalmic disorders will have their scans reviewed.
3. Identify the measures that were evaluated in your workplace and provide a summary of pre- and post-intervention data for each measure. (Please provide source information for each measure.)	Measures: <ol style="list-style-type: none"> <li>1. Any abnormalities missed</li> <li>2. Any new abnormalities detected</li> <li>3. Change in diagnosis</li> <li>4. Change in patient management</li> </ol>
4. What was the source of your data (check all that apply)?	Patient paper chart Other
Please specify	Review of CTs & MRIs
5. What methods were used for data collection (check all that apply)?	Prospective chart abstraction
If other, please specify	Review of outside neuroimaging studies
6. What was the comparison group in this activity (e.g., a regional or national benchmark)?	No comparison group needed, jut the study cohort (approximately 50 patients)
7. Will the identified measures address important issues for your processes of care and/or patients?	Yes

8. Describe the process you went through to develop the QI plan and the tests of change that will be undertaken to improve care (i.e., quality improvement plan design, implementation, and re-evaluation)	Ultimate diagnosis & treatment plan for patient.
9. What benefit do you believe these interventions will have on your processes of care and/or patient population?	Baseline data will be initial interpretation of neuroimaging study; compared to interpretation by a neuroradiologist.
10. What benefit do you believe these interventions will have on your processes of care and/or patient population?	Improved patient outcomes.

## Project Outcomes/Results

1. Describe in detail your role in this activity (i.e., your role in identifying measures and reviewing data, identifying the QI topic, developing the QI plan, identifying interventions, implementing the QI plan and interventions into your practice, etc.).	The records reviewed were from patients seen over the past 18 months in my neuro-ophthalmic practice. I oversaw gathering, analyzing & interpreting the data and assessing how that affected my delivery of patient care.
2. Were other members from your care team involved in this activity?	Yes
If yes, please describe their role(s) in this activity.	A neuro-ophthalmology fellow and a first year resident did the chart abstractions. I oversaw their gathering of data.
3. Describe the impact this QI effort had on your practice and the care that you provided to your patients.	The majority of patients referred to a neuro-ophthalmologist have already undergone a neuroimaging study. The results of this testing is often crucial in establishing the correct diagnosis. It has been my practice to have all neuroimaging studies done elsewhere, reviewed by the neuroradiologists at my academic medical center. I want to be sure that the scan is read correctly & nothing is overlooked.
4. What data can you provide to demonstrate that your change concept produced meaningful improvement in your current processes or patient outcomes? (i.e. percentage reduction in post-operative complication, percentage improvement in a specific cohort of patients etc.)	54 neuroimaging studies were reviewed. No difference was found in 42/54 reads (78%). In 12/54 there were re-interpretations or new findings that had been overlooked. In 9/12 cases this led to a change in diagnosis and/or patient management. This involved optic neuritis in 5 cases, thyroid eye disease in 1, orbital inflammation in 1, perineural invasion by tumor in 1 and cerebral venous sinus thrombosis in 1. In 2 additional cases, incidental abnormalities were also detected, but they had no effect on the patient's clinical course.

## Project Reflection

5. Reflecting on this self-directed Clinical QI project, how do you plan to sustain your improvement?	With approximately 1/4 of the neuroimaging studies being re-interpreted correctly, I will continue have these studies reviewed. As a next step, it may be worthwhile to determine in which diagnoses, the review of the study did not alter the diagnosis. For example, for "headache" all the scans were deemed properly read initially. But for "optic neuritis", many times enhancement of the optic nerve was overlooked.
6. Was this Clinical QI project beneficial to your processes, patient population or practice?	Yes. It made sure that neuroimaging studies in a referral-based neuro-ophthalmology practice were correctly read.
7. Please describe any lessons learned about your work processes by participating in this self-directed Clinical QI project?	A worthwhile endeavor. While I always thought that having the studies reviewed was correct, I now have data to back up this process.
8. What do you plan to do next to improve i.e. reduce variation in your processes of care?	Keep doing what I'm doing but consider a more "focused" approach as outlined in #5.

<p>9. Please describe whether or not you found participation in the self-directed Clinical QI project to be meaningful, impactful and a valuable use of your time.</p>	<p>Yes.....sometimes you need to validate what you do, and in this instance there was good validation. But this project will now make me question other processes that I perform in the belief that they improve patient care.</p>
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