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Job Task Analysis for Neurosonography Specialty

December 16, 2007

JTA Parameters

Analysis Summary For: Neurosonography Exam

Survey Dates	8/6/2007 – 8/20/2007
Invited Respondents	1,354
Surveys with Demographics	406 (completed demographics section)
Completed Surveys	406 (completed all responses)
Response Rate, Completed Surveys	29.9%

Neuro result for the web.docx

Demographics

Educational Level

Educational Level		
	N	Percent
On-the-job training (apprenticeship)	26	6%
Formal education certificate program	117	29%
Formal education Associates degree	101	25%
Formal education Bachelors degree	125	31%
Formal education Masters degree	20	5%
Formal education MD	11	3%
Formal education PhD	3	1%
Total	403	

Table 1. Education -- All Survey Respondents

Graphically, the educational level of respondents is represented below.

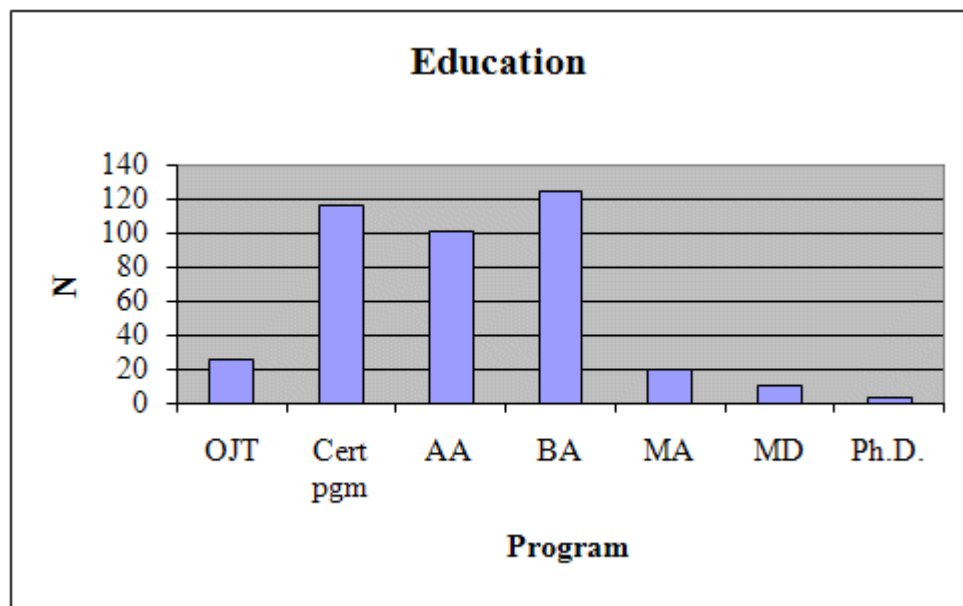


Figure 1. Educational Level

CAAHEP

CAAHEP is the largest programmatic accrediting organization in the health sciences field. In collaboration with its Committees on Accreditation, CAAHEP reviews and accredits nearly 2000 educational programs in nineteen (19) health science occupations. CAAHEP is recognized by the Council for Higher Education Accreditation ([CHEA](#)).

Respondents were asked whether they had graduated from a CAAHEP-approved program.

CAAHEP	N	Percent
No	160	40%
Yes	239	60%
Total	399	

Table 2. CAAHEP Classification All Respondents

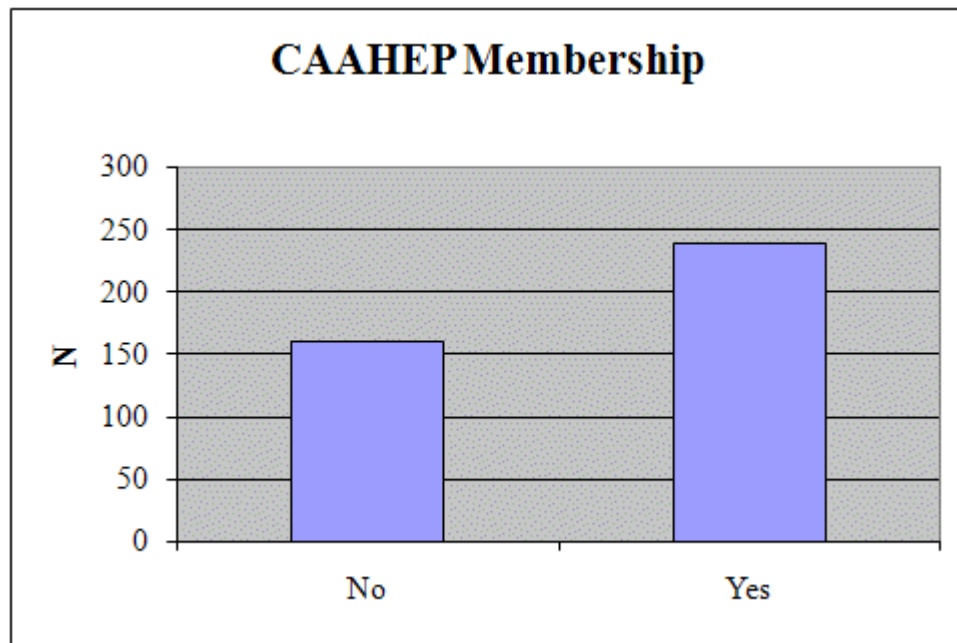


Figure 2. CAAHEP Classification All Respondents

Neuro Exams Performed/Month

Table 3, Neuro Exams per Month, shows the number of exams respondents typically conduct per month in their own practices.

Neuro Exams/Month		
	N	Percent
0-10	138	34%
11-20	60	15%
21-30	27	7%
>30	180	44%
Total	405	

Table 3. Neuro Exams/Month

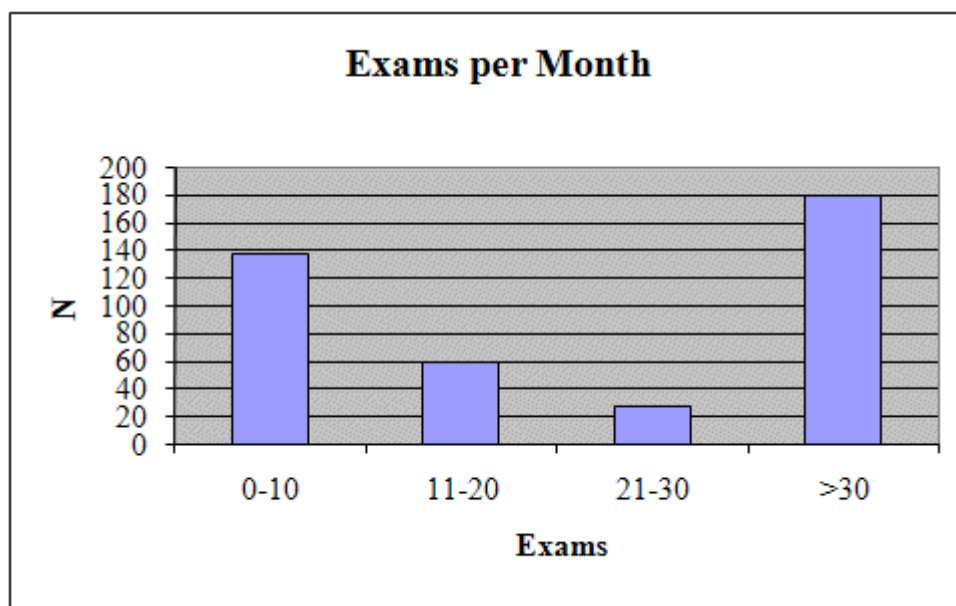


Figure 3. Neuro Exam/Month

Neuro Exams Performed in Lab/Month

Table 4, Neuro Exams Performed in Respondent's Laboratory, shows the number of Neurosonography exams conducted in the respondent's laboratory during the previous year.

Lab Exams		
	N	Percent
0-10	86	21
21-40	53	13
41-50	28	7
>50	236	59
Total	403	

Table 4. Neuro Exams in Lab/Month

The results from Table 4 are presented graphically below.

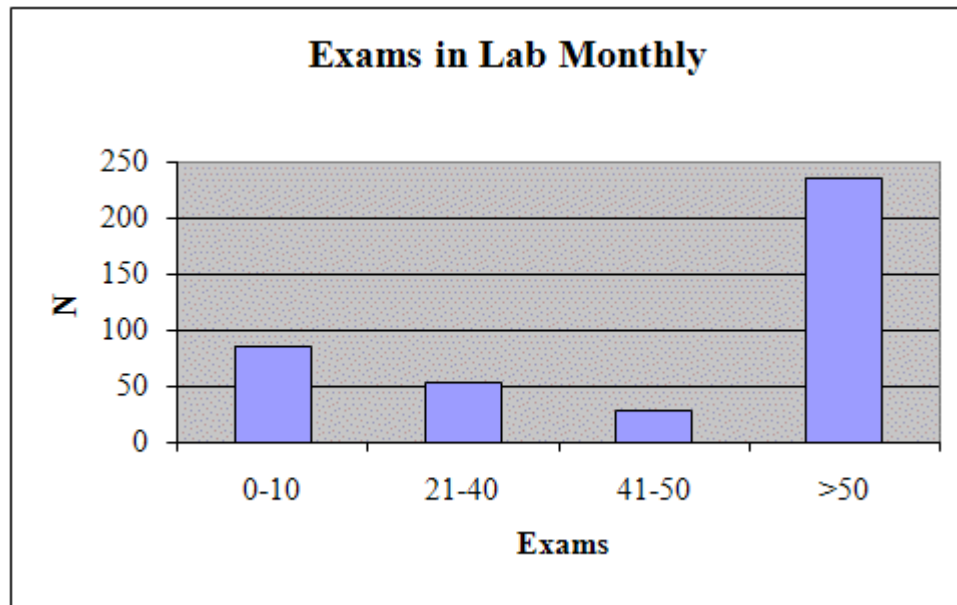


Figure 4. Neuro Exams in Respondent's Laboratory Monthly

Years as a Neurosonographer

The number of years the respondents have spent as a Neurosonographer is tabulated in Table 5.

Years as a Neurosonographer		
	N	Percent
6-10	59	15%
11-15	86	21%
16-20	84	21%
>20	145	36%
Total	404	

Table 5. Years as a Neurosonographer

Years as a Neurosonographer are depicted graphically below.

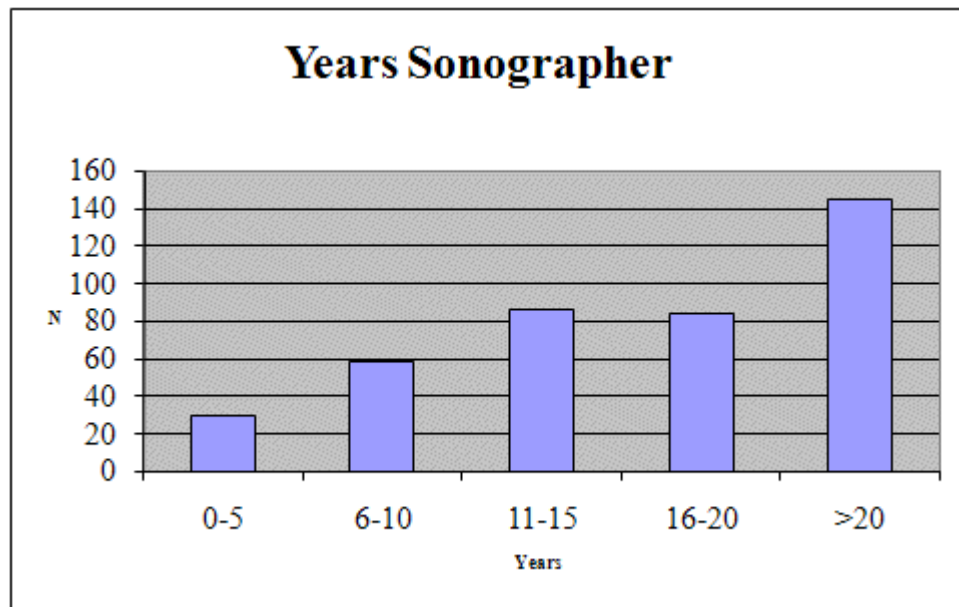


Figure 5. Years as a Neurosonographer

Years in Profession

Table 6, Years in Profession, depicts the number of years the respondents have been in sonography profession.

Years in Profession		
	N	Percent
0-5	73	18%
6-10	75	19%
11-15	94	23%
16-20	89	22%
>20	74	18%
Total	405	

Table 6. Years in Sonography Profession

As is evidenced in Figure 6, Years in Practice All Respondents, the distribution of practice experience peaks at 11-15 years in practice, with the number of respondents tapering off slightly with additional experience. It is interesting to note that the category with the least experience is also the category with the lowest number of respondents.

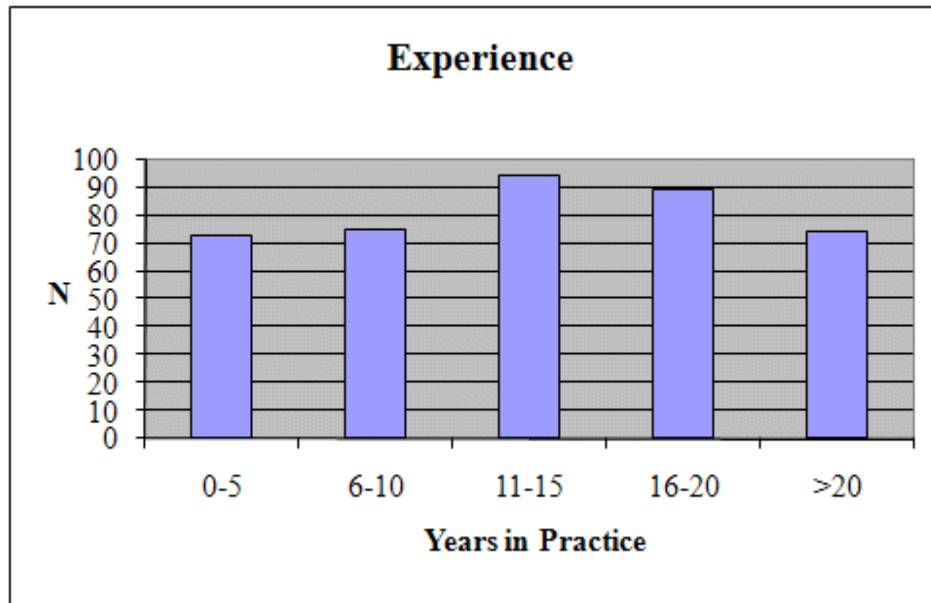


Figure 6. Years in Practice All Respondents

Survey Topics Listings

Below are the complete topic listings as they appeared in the survey.

Topic ID	TEXT
1.0.	Anatomy & physiology
1.1.	Normal anatomy and physiology
1.1.1.	Evaluate anatomy of the brain
1.1.2.	Identify the ventricular systems
1.1.3.	Identify the location of the germinal matrix
1.1.4.	Identify the corpus callosum
1.1.5.	Identify the cerebellum
1.1.6.	Identify caudothalamic groove
1.1.7.	Identify the thalamus
1.1.8.	Identify the caudate nucleus
1.1.9.	Identify the cerebrum
1.1.10.	Identify the falx
1.1.11.	Identify the brain stem
1.1.12.	Identify the foramina of Monro
1.1.13.	Identify the Sylvian fissure
1.1.14.	Identify the lobes of the brain
1.1.15.	Identify the tentorium
1.1.16.	Identify the conus medullaris
1.1.17.	Identify the filum terminalis
1.1.18.	Identify the supporting structures (tentorium cerebelli)
1.1.19.	Identify the spinal cord
1.1.20.	Identify the nerve roots of the spinal cord
1.1.21.	Identify basal ganglia
1.1.22.	Identify the fontanelles of the neonate
1.1.23.	Identify the meninges of the spine
1.1.24.	Identify the major intracranial venous sinuses
1.1.25.	Assessment of posterior fossa
1.1.26.	Identify the bones of the cranial vault
1.1.27.	Identify the sutures of the neonate
1.1.28.	Evaluate anatomy of the skull
1.1.29.	Evaluate cranial sutures

Topic ID	TEXT
1.1.30.	Evaluate the anatomy of the spine
1.2.	Perfusion and function
1.2.1.	Assess for Cerebellar Hemorrhages
1.2.2.	Assess for ventricular compression
1.2.3.	Evaluate for vascular pulsations
1.2.4.	Identify Circle of Willis
1.2.5.	Identify major intracranial arteries
1.2.6.	Evaluate the major intracranial arteries
1.2.7.	Evaluate the blood flow of the cerebral arteries in neonates
2.0.	Pathology
2.1.	Congenital anomalies
2.1.1.	Evaluate for tumor masses
2.1.2.	Identify dimples
2.1.3.	Evaluate for the presence of congenital anomalies
2.1.4.	Evaluate the treatment of ECMO on the brain
2.1.5.	Evaluate for the presence of syrinx
2.1.6.	Evaluate the spine for abnormality
2.1.7.	Evaluate for anatrophia
2.1.8.	Evaluate for the presence of meningomyocele
2.1.9.	Assess for brain herniation
2.1.10.	Evaluate for the presence of diastematomyelia
2.2.	Abnormal physiology
2.2.1.	Evaluate for ventriculomegaly/hydrocephalus
2.2.2.	Evaluate for the presence of midline shift
2.2.3.	Evaluate for edema
2.2.4.	Identify movement
2.2.5.	Evaluate for herniation
2.2.6.	Assess for midline displacement
2.2.7.	Evaluate for inflammatory infections
2.2.8.	Evaluate for brain atrophy
2.2.9.	Evaluate for the presence of a tethered cord
2.2.10.	Evaluate for organic diseases
2.2.11.	Assess for subdural fluid
2.2.12.	Evaluate for the presence of aneurysms
2.2.13.	Evaluate for the presence of tumors and cysts
2.2.14.	Evaluate for development delays
2.3.	Abnormal Perfusion and function

Topic ID	TEXT
2.3.1.	Evaluate for hemorrhage
2.3.2.	Evaluate for PVL
2.3.3.	Assess for hemorrhage
2.3.4.	Identify perivascular calcification
2.3.5.	Assess for extra-axial fluid
2.3.6.	ECMO frequency of Pre/post scans, Post ECHMO complications
2.3.7.	Evaluate ventricular shunts
2.3.8	Evaluate sickle cell disease
2.4.	Postoperative (surgically corrected) anatomy
2.4.1	Evaluate shunt position
3.0.	Patient care
3.2.	Infection control
3.2.1.	Exercise appropriate precautions with patients who have contagious diseases
3.2.2.	Exercise precaution with critically ill infants
3.2.3.	Maintain infection control, especially in the neonatal intensive care unit
4.0.	Integration of data
4.1.	Incorporate outside data (Clinical assessment, H &P, Lab Values)
4.1.1.	Review clinical records
4.1.2.	Obtain pertinent clinical history from the patient's medical record
4.3.	Reporting results
4.3.1.	Calculate change in size of ventricles between two examinations
4.3.2	Discuss the preliminary interpretation of the test results
5.0.	Protocols
5.1.	Clinical standards and guidelines
5.1.1.	Identify medical care of neonate during scanning
5.1.2.	Utilize mastoid fontanelle as acoustic window.
5.1.3.	Use the axial approach as an alternative window
5.1.4.	Use the lambdoid suture as an alternative windows
5.1.5.	Use the posterior fontanelle as an alternative window
5.1.6.	Utilize axial views using the temporal bone as window
5.2.	Measurement techniques
5.2.1.	Identify techniques for measuring dilated lateral ventricles
5.2.2.	Measure the size of lesions in the brain
5.2.3.	Measure the size of the ventricles
5.2.4.	Utilizes axial scans used for measurements.
6.0.	Physics & instrumentation

Topic ID	TEXT
6.1.	Imaging instruments
6.1.1.	Select transducer frequency
6.1.2.	Utilize a high frequency transducer (15 MHz) to assess extra-axial fluid
6.1.3.	Utilize linear array transducer
6.2.	Artifacts
6.2.1.	Evaluate images for artifacts related to acoustic shadowing
6.2.2.	Evaluate images for reverberations artifacts
6.2.3.	Perform quality assurance checks on the equipment
6.2.4.	Evaluate images for artifacts related to improper use of equipment (gain controls)
6.2.5.	Evaluate images for artifacts related to lateral resolution
6.2.6.	Evaluate images for artifacts related to transducer or scan head performance
6.3.	Hemodynamics
6.3.1.	Utilize color during Transcranial Doppler studies
6.3.2.	Utilize Doppler equipment
6.3.3.	Utilize pulsed-Doppler
6.3.4.	Employ duplex scanning w/color flow to evaluate vascular flow in cervical carotids
6.3.5.	Utilize duplex color flow mapping
6.3.6.	Utilize Doppler flow mapping
6.3.7.	Evaluate the anterior cerebral artery in patient with hydrocephalus
6.3.8.	Utilize transcranial Doppler
6.3.9.	Employ duplex scanning with color flow to evaluate intracranial vascular flow
6.3.10.	Utilize Doppler ultrasound for neurosonographic examinations
6.3.11.	Employ pulsed Doppler ultrasound to evaluate intracranial vascular flow
6.3.12.	Utilize color Doppler to access superior sagittal sinus and transverse sinus
6.3.13.	Utilize transcranial Doppler in sickle cell patients
7.0.	Treatment
7.3.	Sonographer role in procedures
7.3.1.	Interact with the supervising physician as to the adequacy of the examination
7.3.2.	Instruct other sonographers and/or physicians in the use of ultrasound
7.3.3.	Receive requests and schedule examinations
7.3.4.	Interact with referring physician as to the reasons for the examinations
7.3.5.	Educate the public in the application of ultrasound
7.3.6.	Educate other health care professionals in the application of ultrasound
7.3.7.	Assist physician during surgical intracranial procedures
8.0.	Other
8.1.	Traumatic injury

Topic ID	TEXT
8.1.1.	Evaluate the brain after traumatic injury
8.2.	Managing medical emergencies
8.2.1.	Inform the supervising physician of findings of an emergent nature