

AB Baker Section Highlights in the Field of Education Research

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Patient Safety

- Violence and abuse
- Handover communications
- “July Effect”
- Medication errors

Reported History of Abuse and Violence in Neurology Clinic Patients Abstract #189

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Disclosures: Anna DePold Hohler reports receiving speaking honoraria from TEVA, and the American Parkinson's disease Association

Background:

- This study was developed to determine the prevalence of abuse and violence in patients evaluated in a university neurology clinic and analyze the associated neurological diagnoses in these individuals.

Methods:

- 103 patients reporting to an academic neurology clinic specializing in autonomic and movement disorders were screened for a history of abuse and violence.
- A standard patient intake questionnaire was used and the issue was then addressed privately during the physician history taking.
- A retrospective analysis was performed and the prevalence of abuse and violence in general as well as each subtype of abuse was calculated. The categories of neurological diagnoses that were most frequently reported among patients screening positive were then evaluated.

Results

- **Twenty-two of the 103 patients (21%)** screened reported experiencing abuse or violence.
- The most commonly reported exposure was being a witness to abuse to violence (65%), followed by physical abuse (41%), sexual and emotional abuse (36% each), and financial abuse (23%).
- Two patients reported ongoing issues with abuse. Patients were provided with information on available local resources.
- Neurological disorders diagnosed in these patients were **chronic pain, neuropathy, autonomic dysfunction, headache, and Parkinson's disease.**

Conclusions/Future Directions

- Patients with neurological disorders may have been exposed to abuse and violence.
- It is important to recognize these issues and address them as part of the routine evaluation of all neurology patients.
- Future studies aimed at characterizing the impact of abuse and violence on autonomic dysfunction and neurochemical signaling are needed.
- These studies will help to highlight the specific mechanism of neurological dysfunction related to abuse and may help us to work on these issues in a more preventative way in the near future.

Assessment of Handover Communication Among Neurology Residents:

Utilization of a Handover OSCE and a Standardized Curriculum to Improve Transitions of Care

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Abstract P07.237

The authors have no disclosures.

Background

- Resident competency in handover communication is not routinely assessed in core educational curriculums.

Methods

- An objective structured clinical examination (OSCE) was used to assess handover communication before and 3-months after completion of a structured handover curriculum.
- The 2-part OSCE measured effectiveness in delivering and receiving clinical information during a simulated transition of care.
- A point was awarded for each of the 15 pre-specified core clinical elements included by the resident in the handover communication.
- Resident OSCE scores were compared before and after handover education using a paired Student's t-test.

Results

- Four PGY-2 neurology residents completed the initial and follow-up OSCE.

	Mean OSCE score (Pre-Handover Education)	Mean OSCE score (Post-Handover Education)	
Part I (handover reception)	7.75	11.75	4 point improvement; 95% CI [2.16-5.84], <i>p</i> = 0.0062
Part II (handover delivery)	13.25	13.25	N/A

Conclusions

- A standardized handover OSCE is sensitive to performance changes after completion of a structured handover curriculum.
- Standardized education with ongoing resident-to-resident feedback is effective in improving handover competency.

Future Directions

- Development of a valid tool to measure quality and content of handover communications in real-time may be useful for ongoing resident education.

Abstract 561:

Standardized sign out improves communication skills

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Drs. Moseley, Smith, Diaz-Medina, Paz Soldan, Wicklund, Dhamija, Reda, Presti, and Britton report no disclosures. This study is not industry/NIH sponsored.

Background

- Our objective was to determine if a structured sign-out system using the Situation-Background-Assessment-Recommendation (SBAR) format improved completeness and perceived accuracy of handoffs on inpatient Neurology services.

Methods

- A redesigned standardized sign out system was created utilizing the SBAR format.
- Over 3 months, PGY-1 through 3 residents on our General Neurology, Stroke, and Neurologic ICU services spent the first half of the rotation utilizing the old, unstructured sign out system.
- During the second half, they utilized the new structured sign out system.
- Questionnaires completed by residents prior to implementation of the structured sign out system and at the conclusion of the rotation gauged whether the new system resulted in improved completeness and perceived accuracy of information being communicated at handoffs.

Key Findings

- 33 residents completed the pre-implementation survey; 20 residents completed the post-implementation survey.
- Overall resident satisfaction with sign out (scale 1-10) increased from 6.2 ± 1.6 to 7.4 ± 1.3 ($p=0.002$).
- Residents utilizing the redesigned, structured sign out were significantly more likely to:
 - share test results with patients prior to shift changes ($p=0.037$)
 - update our electronic service list ($p=0.045$).
- The percentage of residents who felt all important data was being transmitted during sign out increased from 49% to 80% ($p=0.041$).

Conclusions and Future Directions

- Structured sign out resulted in improved completeness and perceived accuracy of information being communicated.
- Residents utilizing an SBAR-style sign out system were significantly more likely to share test results with patients prior to shift changes, update electronic service lists, and deem that all important data was being transmitted.
- Such results may translate into improved patient safety and quality of care.
- Given that communication problems have been noted as contributing factors in malpractice claims, further research into the effectiveness of structured sign out at reducing morbidity/mortality is needed.

July Effect: Myth or Reality? Comparing July Effect on Acute Ischemic Stroke Short-term Outcomes and Resource Utilization.

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Disclosures: None

Background:

- The potential impact of inexperienced house staff on outcomes or resource utilization in acute ischemic stroke has not been studied. We aimed to assess impact of the July effect on resource utilization and functional outcomes in acute ischemic stroke.

Methods:

- Adult patients with primary diagnosis of acute ischemic stroke admitted to teaching hospitals between 2005-2009
 - Nationwide Inpatient Sample (NIS) of Healthcare Cost and Utilization Project (HCUP)
- Primary outcome: Inpatient mortality & rate of discharge to home.
- Secondary outcomes:
 - Rate of tPA use
 - Length of hospitalization
 - Inflation adjusted hospital charges.
- Chi-square and student-t test were used for comparisons and multivariate logistic regression was used for adjusted outcomes analysis.

Results:

- 800,531 cases of acute ischemic stroke identified (2005-2009)
- 63,607 (7.95%) occurred in July.
- No Difference:
 - Rate of thrombolysis use: (4.5% vs. 4.3%, $p=0.357$).
 - Length of Hospitalization: (mean SE: 5.81 ± 0.09 vs. 5.95 ± 0.06)
 - Inflation adjusted hospital charges (2011 value): (USD $39,505 \pm 1,120$ vs. $39,876 \pm 982$)
- Inpatient mortality
 - Lower inpatient mortality in July (5.4% vs. 6.0%, $p=0.007$) by univariate analysis
 - After controlling for age, gender, race, hospital characteristics, severity, tPA use and length of stay, mortality did not differ (Adj. OR:0.96; 95%CI; 0.87-1.06, $p=0.420$).
- Rate discharged to home (self-care)
 - Higher in July (38.9% vs. 36.7%, $p<0.001$) and on multivariate analysis, it remained significant (OR:1.08; 95%CI; 1.02-1.15, $p=0.006$).

Conclusion:

- Our data refute the existence of a deleterious July effect in ischemic stroke in the USA
- Rate of discharge to home was higher in July compared to the rest of the year.
 - Other contributing factors, such as variability of stroke severity by season may contribute
 - The protocol for tPA administration in many hospitals may not involve residents, or inexperienced residents
- Future studies should investigate which factors (increased supervision, protocol driven care, etc...) compensate for the inexperience of new house staff early in training

Medication Events on a Tertiary Neurology Inpatient Service

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P07.239

We have no disclosures.

Background

- Medication events are common in hospitalized patients, but relatively little is known about the characteristics of medication events on neurology inpatient services.

Methods

- Medication events reported on inpatient neurology services were reviewed from January 1, 2009 through December 31, 2010 in a 1,265-bed tertiary care center.
- Data collection was through a pre-established institutional voluntary event recording system.
- Reportable events included any event that was an undesired occurrence that caused or had the potential to cause injury.

Results

- 143 medication events were reported, for a rate of 8.6 events per 1000 patient days.
- There was no statistically significant difference in number of events per 1000 patient-days between the 1st and 4th academic quarter $p=0.63$ on Wilcoxon rank sum test.
- There were similar event numbers during day (59) and evening (55) shifts, with less reported during night shift (20).
- 118 (82.5%) reached the patient; 103 (72%) did not require intervention. Only 25 (17.5%) reported events were “near misses” where the event did not reach the patient.
- The most common medication classes involved were anticoagulants (16.8%), anticonvulsants (11.9%), and antibiotics (11.2%).
- The most common types of events were medication omission (18.9%)
- The most common step of the medication use process in which an event occurred was administration (53.8%).
- Nurses were involved in reporting 133 events (93%), while physicians were involved in reporting 20 events (14%).

Conclusion

- Medication events were not uncommon on our neurology services, frequently involving anticoagulants, anticonvulsants, and antibiotics.
- Most reported events do not result in harm
- There appears to be underreporting of “near miss” events
- In contrast to popular belief, there was no increase in number of events at the beginning of the academic year.
- Events occurred more often during day and evening shifts compared to night shift, mirroring the volume of medications administered during those shifts.
- Nurses reported the majority of events, suggesting a stronger culture of reporting among non physicians on our units.

Resident assessment

- NEX ratings reliability
- Faculty development

NEX Ratings Correlate Weakly between Local and External Examiners with and without ABPN Experience

Abstract # 1686

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This study was funded by an American Academy of Neurology Education Research Grant.

The authors have no relevant disclosures.

- **Background:** We previously demonstrated poor interrater reliability between local faculty and ABPN examiners in evaluating neurology resident clinical skills exams (NEX). We noted that one possible explanation was bias on the part of the local faculty evaluators. (Schuh, et al 2009)
- **Methods:** De-identified videotaped encounters between residents and patients were evaluated by former American Board of Psychiatry and Neurology (ABPN) oral board examiners and external, non-ABPN examiners who did not know the residents.

Findings

- 58 NEX encounters with 20 residents were evaluated by 13 ABPN examiners and 10 external faculty examiners.
- Cohen's Kappa score for inter-rater reliability in determination of pass versus fail between ABPN and non-ABPN external faculty examiners was 0.47 (95% CI=(0.21,0.73)), failing to meet target of > 0.7 .

- **Conclusions:** The discrepancies in ratings between the ABPN and the non-ABPN external faculty examiners can not be due to familiarity with the residents, because none of the raters knew the residents. Other possible explanations include:
 - lack of training by non-ABPN evaluators
 - the evaluation tool might be invalid.
- **Future directions:**
 - A study of interrater reliability between ABPN examiners could help distinguish possible explanations.
 - The AAN has developed a training program for faculty evaluators; research is necessary to determine whether it improves inter-rater reliability.

[P07.234] The Clinical Skills Examination Training Program (CSET): An Interactive Training Exercise for Evaluators

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Background and Methods

- Although the ABPN requires that adult neurology residents demonstrate competency in medical interviewing and the neurologic examination, there is no training program to guide evaluators and improve inter-rater reliability.
- Clinical Skills Examination Training Program (CSET)
 - From 50 piloted cases, 10 clinical vignettes were selected based on points of discussion. Each vignette contained a hypothetical omission made by the resident.
 - Participants voted to pass or fail the resident using an audience-response system.
 - Voting was performed immediately after presentation of the vignette and again after audience discussion of the case
 - Improvement was defined as a change in the passing rate in the desired direction for each case.
 - A paired t test was used to compare the passing rate before and after the intervention for all items combined.

Results

- CSET was piloted at 5 sites, with a total of 108
- Participant characteristics were available from 4 sites
 - 83.5% were faculty
 - 64.3% were program directors
 - 28.3% were previously ABPN examiners
 - 16.5% were trainees
- Improvement (voting in the expected direction) was noted for each item after the intervention, with rates ranging from 2.7% to 17.6%.
- The aggregate improvement for all items was 10.3% (95% confidence interval, 5.8-14.9%; $p < 0.001$).

Conclusions

- In this pilot study, an interactive case review improved participant ability to rate in the desired direction.
- Expansion of this program is recommended for further assessment of validity.
- The CSET program is available on the AAN website in the Program Director Toolbox.

EMR Driven education

- Pilot study

EMR-Driven Medical Education: A Multi-Institutional Study of Clinician Perspectives

Abstract #S17.006

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Background and Methods

Despite the explosion of accessible healthcare information, and the mandatory, nationwide implementation (via the HITECH ACT of 2009) of electronic medical records which make meaningful use of such information, knowledge management technologies continue to be underutilized.

We created a prototype of a software that uses live information from the medical record to create an individualized curriculum for each clinician.

We then simulated the use of this software by creating a prototype of the software on survey monkey. Using four cases common to both Internal Medicine and Neurology, we canvassed five different academic institutions, assessing clinician perspectives, perceived utility and barriers to implementation.

Key Findings

- The software consistently identified resources that “could change practice”, demonstrating the ability of a basic search algorithm to identify valuable clinical resources.
- However, clinicians worried that too much information would be presented and cited time as a major barrier to implementation.
- Notably, there is clinician demand for unique education approaches such as EMR-linked standardized exam preparation and EMR-linked continuing medical education.
- Interestingly, faculty were more likely than residents to be interested in using the technology for learning outside their own specialty.
- Importantly, clinicians preferred desktop to device access.
- Results were generally similar across specialty and institution.

Conclusions / Future Directions

- Automated software that reads from an electronic medical record can deliver high-impact, patient-specific resources to clinicians, and physicians have a desire for access to such tools, but time limitations, as well as information overload, are major barriers to implementation.
- Strong consideration should be given to using dedicated time blocks in computer labs, at all levels of medical training, to allow clinicians the time necessary to fully maximize the potential benefit that knowledge management technologies can bring to their education and to their patients.
- In the future, we hope to analyze the comparative effectiveness of this software, and other types of knowledge management technologies, in a multi-institutional, randomized, controlled trial comparing scores on the Internal Medicine and Neurology Script Concordance tests.
- We hope to use results from this abstract and from our next study to create a multi-institutional Educational Outcomes Assessment Database, which will read live information from the EMR and allow clinicians or educators to analyze their clinical performance, to compare them to national standards and to design educational studies that assess real clinical outcomes.