

# A Comparison of Two Tools Used in the Prehospital Setting to Determine Potential Candidates for Stroke Bypass

---

*Nicola Bayfield-Ash BHScN, Richard Dionne MD,  
Justin Maloney MD, Alexander MacQuarrie CCP,  
Maureen Murdock RN, Manon Lavergne ACP,  
Julie Simard PCP, Debbie Charbonneau HRA,  
John Trickett BScN*

# Acknowledgements

---

- ❑ Ottawa Paramedic Service
- ❑ Department of Emergency Medicine – University of Ottawa
- ❑ Staff of Ottawa Base Hospital
- ❑ Deanna Schofield ACP



# Introduction

---

- Tissue Plasminogen Activator (tPA) has been shown to be effective for treatment of acute stroke if given within the first 3 hours of onset of symptoms.
- As part of the Stroke Team, Paramedics in Ottawa have utilized two different prehospital screening tools for acute stroke since October 2004. Neither tool has been previously validated.

# Objectives

---

- To examine the provincial tool utilized currently for acute stroke bypass in comparison with the Ottawa stroke tool.
- To compare both prehospital tools to the in-hospital assessment tool and make recommendations for improvement of the prehospital tool.

# Methods

---

- Retrospective chart review on 510 consecutive patients presenting with stroke-like symptoms at the Ottawa hospital who arrived via Ottawa Paramedic Service.
- Using Paramedic reviewers the two tools were compared.

# Methods

---

- Physician and RN review was used where there was discordance between reviewers.
- Physician and RN review using the prehospital tools was compared to the in-hospital decision to call a 'Stroke Code'.



# Similarities in the Tools

---

- Onset of symptoms to arrival in ER <2 hrs
- Facial droop, difficulty speaking, unilateral arm/leg weakness
- CTAS 1 and/or uncorrected airway, breathing or major circulatory problems are excluded
- Blood sugar must be > 4.0



# Key Differences in Exclusion Criteria

---

## □ *Ottawa Tool*

- Patient has a history of seizures
- Patient GCS <13
- Patient's age is >44years
- Patient was transferred from another hospital

## □ *Provincial Tool*

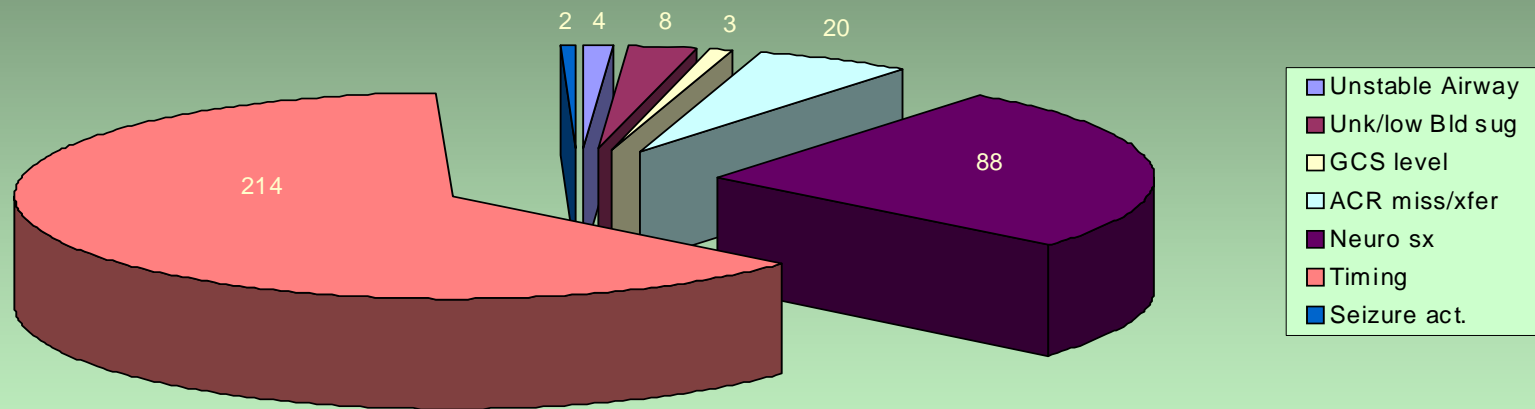
- Patient had a seizure at onset of symptoms or observed by paramedic
- GCS < 10
- Stroke symptoms have resolved prior to arrival to ER dept

# Results

## STROKE STUDY

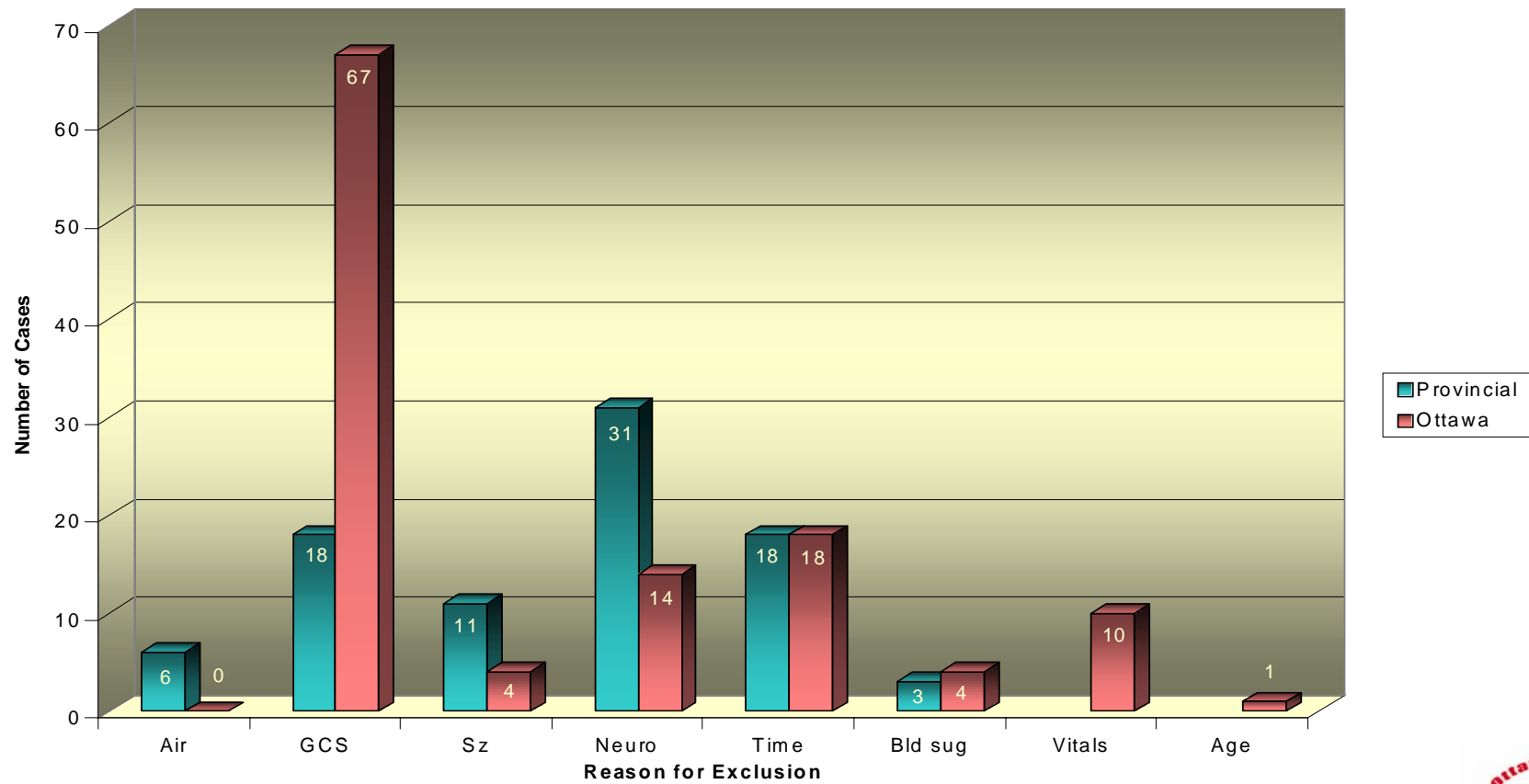
October 2004 to November 2005

Reasons Cases were Excluded from Review  
339 cases out of 510 cases



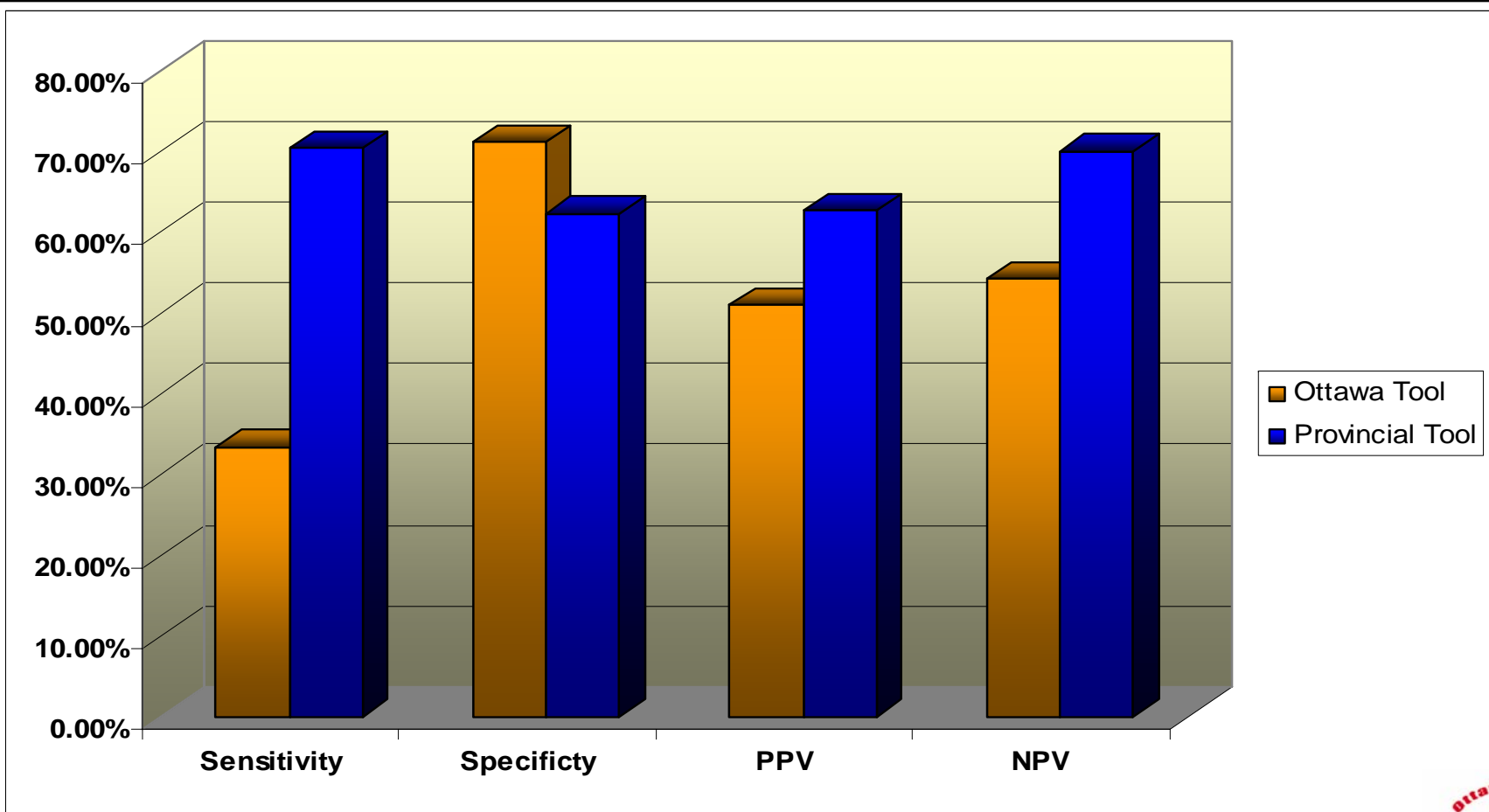
# Results

Cases Excluded According to Stroke Tools  
171 Cases Reviewed



# Results

Ottawa Tool & Provincial Tools Compared to In-Hospital Stroke Codes Called



# Discussion

---

- ❑ The Provincial tool yielded a greater sensitivity.
- ❑ Previous neurological deficit and trauma are not clearly defined.
- ❑ A large portion of the patient population were excluded only on time elapsed.
- ❑ GCS can be drastically lowered in patients with aphasia and should be excluded.

# Limitations

---

- ❑ Retrospective chart review relies on what is documented on the ambulance call report, leaving a margin of error due to omissions.
- ❑ Physician/RN review comparison to ER Stroke log assumes that the ER log and decision to call a stroke code are always accurate.

# Conclusions

---

- ❑ GCS should be removed as an exclusion criteria in the prehospital setting
- ❑ ‘Resolving symptoms’ needs to be more clearly defined.
- ❑ Need to focus on LTC facility education to improve time of onset to 911 call.
- ❑ Confirmed that the provincial tool is better.

# Take Home Message,.....

---

- ❑ Education in Long Term Care facilities and public awareness needs to be enhanced.
- ❑ Local healthcare providers should reach out to the LTC in their area to develop partnerships and agreements.
- ❑ Provincially we are using the better of the two tools, some modifications could still be made.

# Acknowledgements

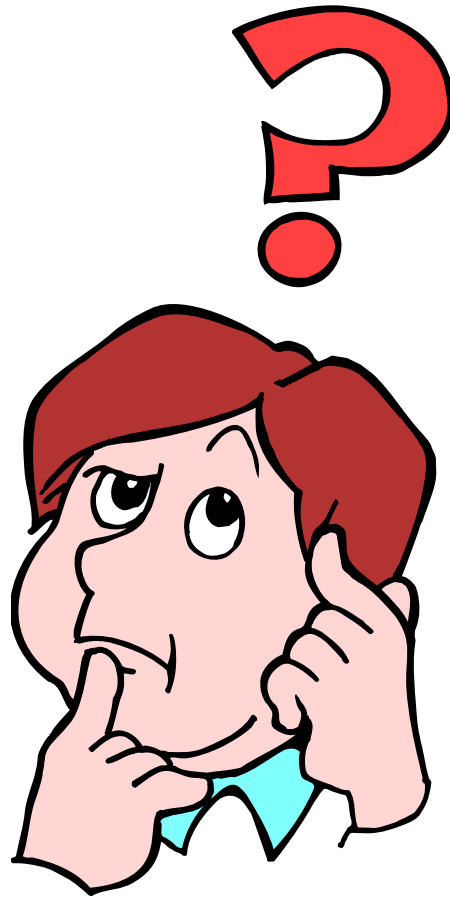
---

- Ottawa Paramedic Service
- Department of Emergency Medicine – University of Ottawa
- Staff of Ottawa Base Hospital
- Deanna Schofield ACP



# Questions

---





# References

---

- NINDS Stroke Study Group: *Tissue plasminogen activator for acute ischemic stroke*. The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group, NEJM 1995, December 14.
- Kidwell CS, Starkman, S et al. *Identifying stroke in the prospective validation of the Los Angeles prehospital stroke screen (LAPSS)*, Stroke, Jan.
- Kothari RU, Pancioli A et al. *Cincinnati Prehospital Stroke Scale reproducibility and validity*, Annals of Emergency Medicine April 1999.