

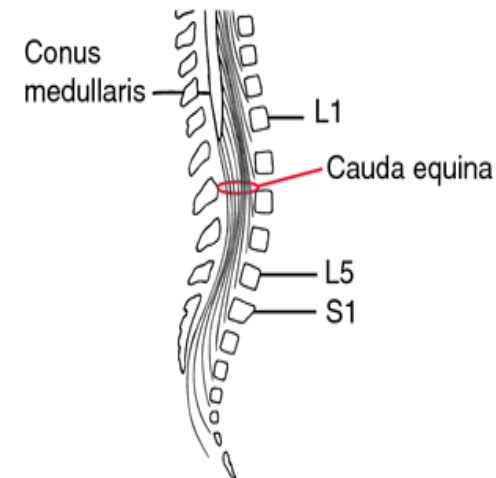
The New Suspected Cauda Equina Syndrome (CES) Pathway – GP Study Day 2017



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Cauda Equina Syndrome (CES)

- The cauda equina: nerve roots caudal to the level of spinal cord termination.
- CES: loss of function of nerve roots below conus medullaris
- Clinical diagnosis of CES is not easy!



Clinical Signs and Red Flags for Cauda Equina Syndrome

History

- Back pain with uni / bilateral sciatica
- Lower limb weakness
- Altered perianal sensation
- Faecal incontinence
- Acute urinary retention / incontinence

Examination

- Limb weakness
- Other neurological deficit / gait disturbance
- Hyper-reflexia, clonus, up-going plantars
- Urine retention
- DRE: Saddle anaesthesia
- DRE: Loss of anal tone

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Why is CES Important?

- CES is a neurosurgical (NS) emergency.
- CXH is a tertiary NS referral centre.
- The prevalence: 1-3 per 100,000 population.
- Accounts for approximately 0.04% of all patients presenting with low back pain.
- Rare but potentially disabling.
- Early diagnosis and surgical decompression crucial for a favorable outcome.
- Missed CES diagnosis often results in litigation!

SBNS Recommendations for Standards of Care

- All cases of suspected CES should be assessed promptly in ED with ortho/NS advice.
- ED should have an agreed protocol with their local spinal service for assessment, referral and imaging.
- MRI is the preferred imaging modality with a low threshold for prompt scanning
- Access to 24 hour MRI scanning
- Proven CES: Nothing is gained by delaying surgery and potentially much to be lost!

Sagittal MRI images demonstrating large central disc extrusion at L5-S1 (arrows) with compression on the cauda equina.



Source: Lewis, J. T. (2009). "Cauda equina syndrome." *Western Journal of Emergency Medicine* 10(1): 20.

Challenges in Primary Care

- Clinical diagnosis of CES is challenging
- Back Pain a common presentation
- Exclude red flags in vague historians
- Opiate analgesia confound bowel symptoms
- <10mins for complete neuro assessment!
- Difficulty getting neurosurgical advice
- Managing patient expectations

Current Practice in ED

- Back Pain ?CES is a common presentation
- Several challenges for ED, NS & Radiology
- Long wait for NS review
- MRI can only requested by NS Team
- Long wait for scan
- These patients often breach in ED
- No out of hours MRIs at St. Mary's Hospital
- **No formal trust wide pathway**

Objectives

- To evaluate current practice for referrals for NS review & MRI in patients with suspected CES.
- Evaluate if there evidence to suggest that senior ED doctors [consultants & registrars] should be able to request out of hours MRI
- Create a trust wide suspected CES pathway

Methodology

- Retrospective case note analysis of all patients [N=668] presenting ED with back pain :
 - CXH [N=393]
 - SMH [N=275]
- 3-month period [15 June – 15 Sept 2016]

Data Summary: All Patients

CXH

- N= 393
- Age 49.5 ± 18.5
- Referred to NS: 49
[12.5%]
- IP MRI: N=41 [10.4%]
- OP MRI: N=6 [1.5%]
- Delayed IP MRI: N=2
[0.5%]
- No MRI: N=344
[87.5%]

SMH

- N= 275
- Age 45.4 ± 17.5
- Referred to NS: 15
[5.5%]
- IP MRI: N=12 [4.4%]
- OP MRI: N=3 [1.1%]
- Delayed IP MRI: N=0
- No MRI: N=344
[94.5%]

CXH: IP MRI Data [N=41]

- Mode of referral
 - Self: 63.4%
 - Hospital transfer: 26.8%
 - GP: 9.8%
- Out of hours attendance: 51.2% [24.4% W/E]
- Specialty assessment:
 - ED: 68.3%
 - Direct NS: 24.4% & Direct Onc MSCC: 7.3%
- Previous NS Hx: 73.2%

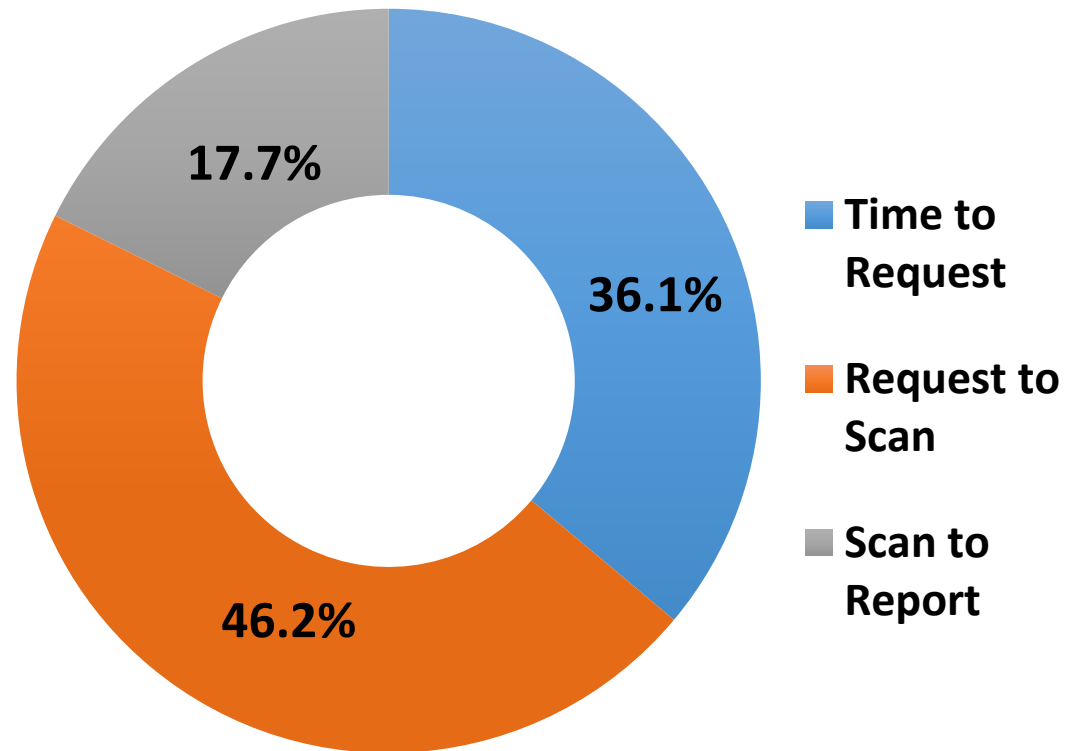
CXH: IP MRI Data [N=41]

- **Presenting complaint: Pain +**
 - Weakness: 51.2%
 - Sensory deficit: 61%
 - Saddle anaesthesia: 39%
 - Urinary dysfunction: 63.4%
 - Bowel dysfunction: 36.6%
- **Objective neurological deficits:**
 - Weakness: 53.7%
 - Sensory deficit: 58.5%
 - Reduced perianal sensation: 51.2%
 - Reduced anal tone: 26.8%

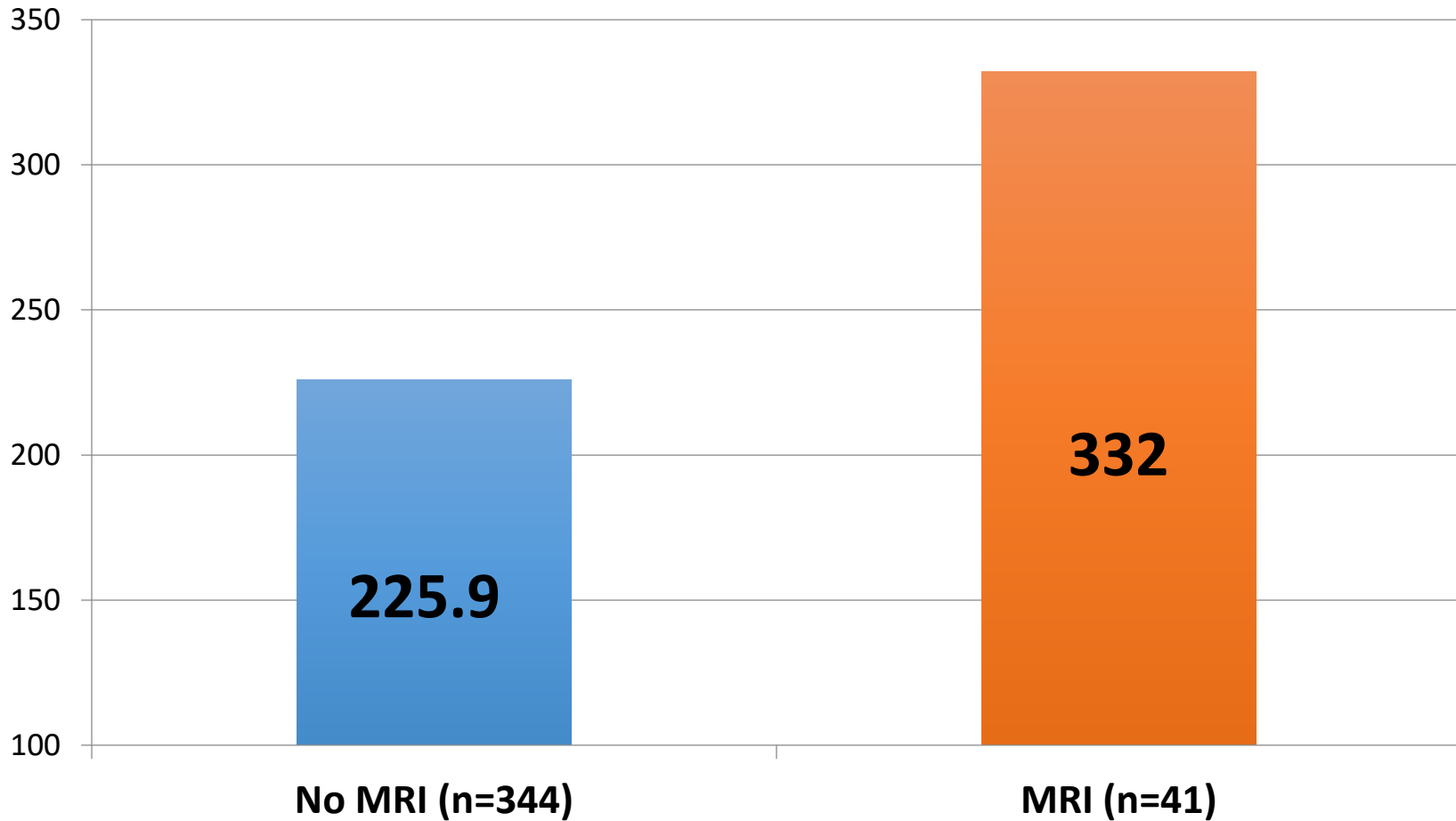
CXH: IP MRI Breakdown

Attendance to MRI Result - **8.09** Hours

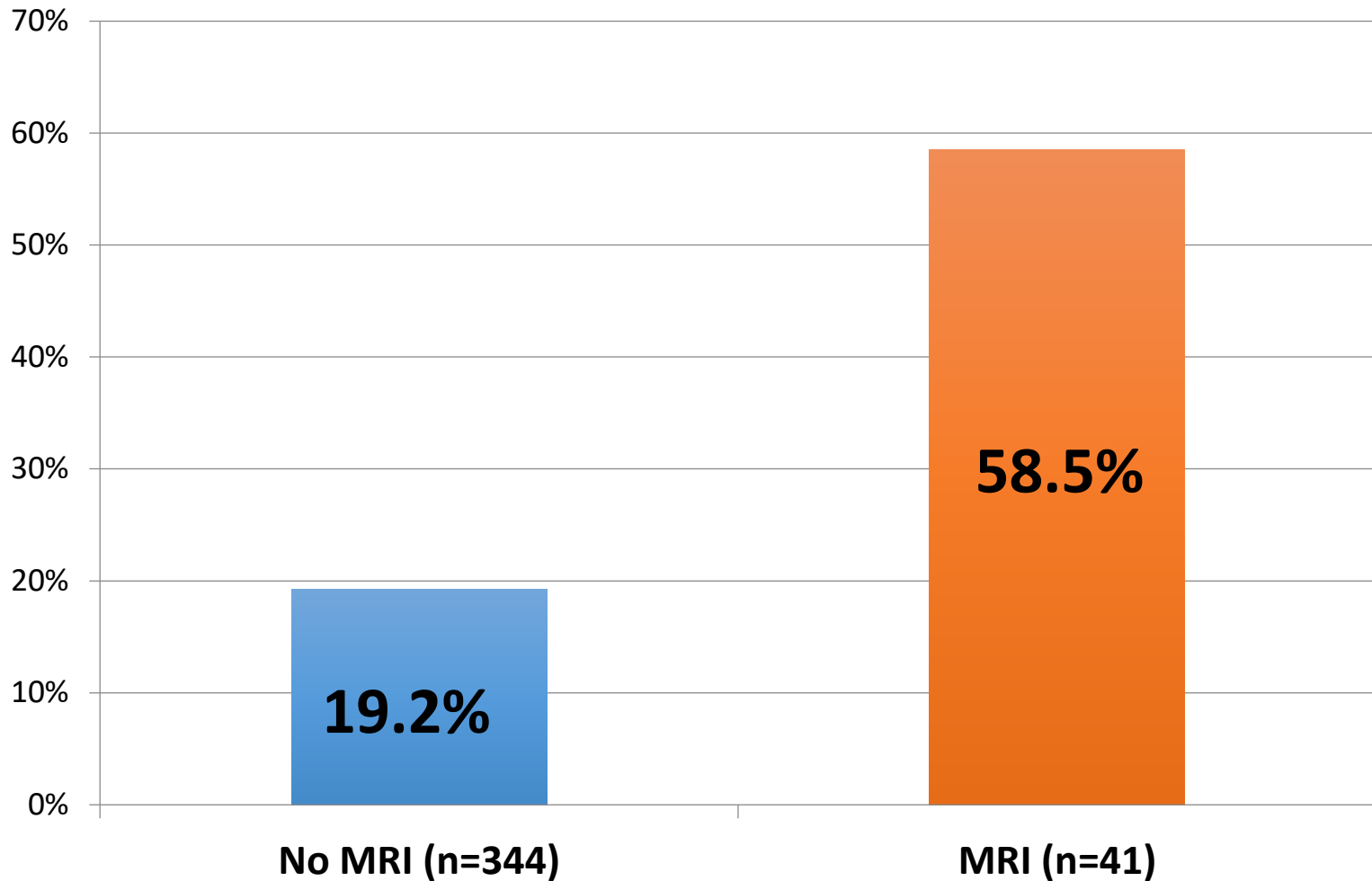
- OOH: 78%
- Ordered by:
 - NS: 58.5%
 - ED with NS discussion: 36.6%
 - Onc: 4.9%



CXH: Time in ED [Mins]



CXH: Percentage Breached



CXH: IP MRI Outcome

- **Admitted: 65.9%**
 - NS: 24.4%
 - CDU: 22%
 - Onc: 7.3%
 - AEC: 4.9%
 - Medicine: 7.3%
- **CES on MRI: 14.6%**
- **NS Intervention: 24.4%**
 - Emergency surgery: 12.2%
 - Refused: 2.4%
 - Palliation: 2.4%
 - Elective: 4.9%
 - Injection: 2.4%
- **Total Hospital stay: 3.7 days**

CXH: ED vs. NS Agreement

- **ED Assessment by SHO: 84.6%**
- **Neuro Exam: 80.8% Agreement**
 - Signs suggestive of CES: 7.7%
 - Signs against CES: 11.5%
 - Change in management: 3.8%
- **?CES as Diagnosis: 84.6% Agreement**
 - Change in management: 11.5%
 - No MRI: 3.8%
 - Verdict of 4 disagreements:
 - 3 NS correct
 - 1 ED SHO correct

Conclusions

- Delays in requesting & arranging MRI
- Long wait from door to MRI report
- NS assessment not always before MRI
- MRI results in longer time in ED
- MRI leads to greater number of breaches
- Good agreement between ED and NS assessment

Recommendations

- Need for Trust wide CES Pathway
- Need for OOH MRI at SMH [avoid delays due to transfers]
- ED Senior should be able to request MRI to reduce delays.

Ideal Primary Care Referral

- Comprehensive history & examination
- Change in symptoms
- Key red flags

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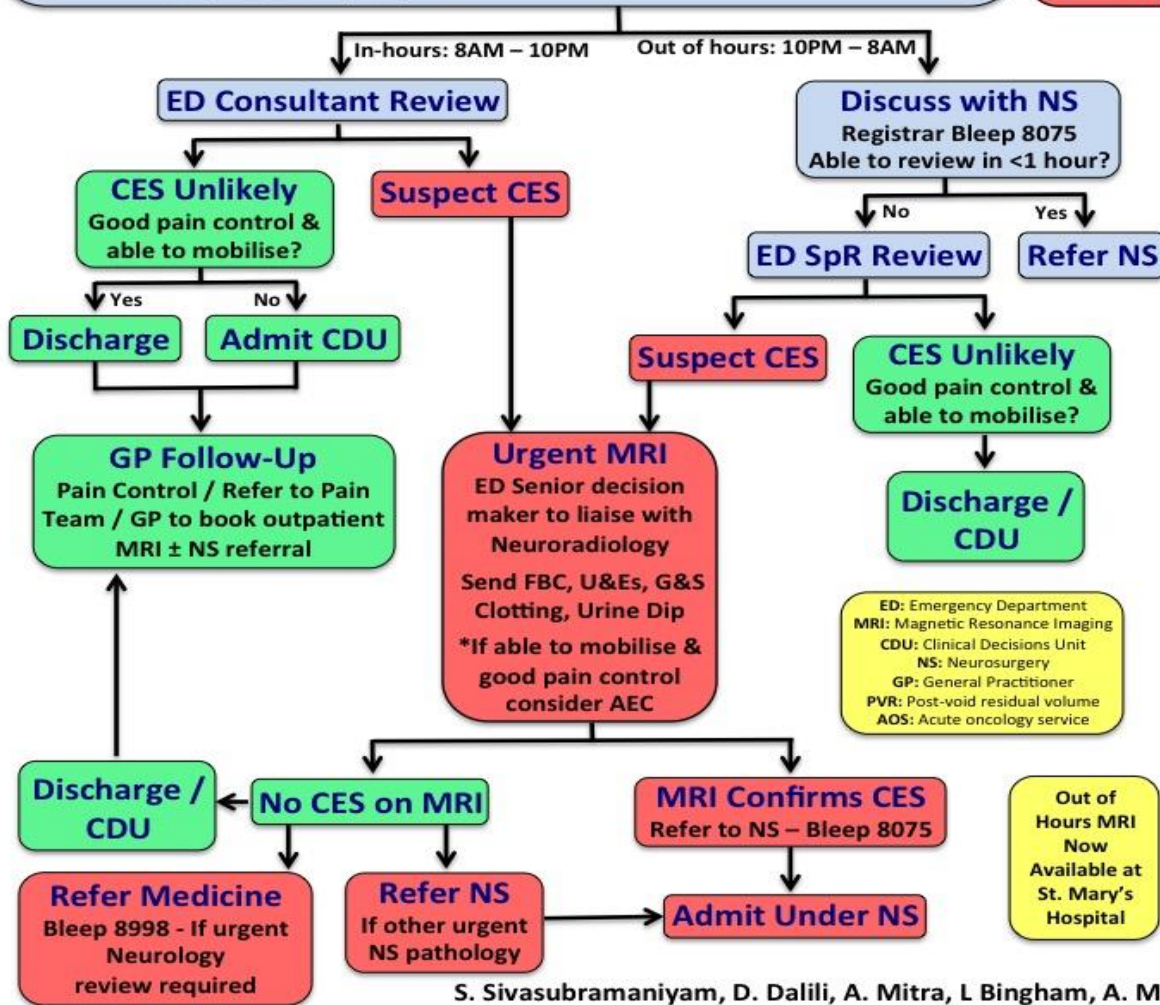
Examination

- ☐ ▪ Limb weakness
- ☐ ▪ Other neurological deficit / gait disturbance
- ☐ ▪ Hyper-reflexia, clonus, up-going plantars
- ☐ ▪ Urine retention – bladder scan PVR >400ml
- ☐ ▪ DRE: Saddle anaesthesia
- ☐ ▪ DRE: Loss of anal tone

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DON'T FORGET!

- Aortic Dissection
- AAA
- Cord Compression [AOS MSCC Pathway]



Questions?

Thank You