

# BMJ Open Quality Alert Cards to improve awareness of an otological emergency

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## INTRODUCTION

Sudden sensorineural hearing loss (SSNHL) is a distressing condition that may lead to permanent disability with severe/profound deafness and tinnitus. While the aetiology varies, and is often idiopathic, urgent audiological assessment and management improves likelihood of hearing recovery.<sup>1</sup> Bilateral vestibular schwannomas (VS) are a hallmark feature of neurofibromatosis type 2 (NF2) occurring in over 95% of patients.<sup>2</sup> Up to 12% of patients with VS may present with SSNHL.<sup>3</sup> Sudden hearing loss should be urgently assessed to determine if conductive or sensorineural using physical examination, otoscopy, tuning fork tests or audiometry. If found to be sensorineural, urgent treatment with high-dose oral and/or intratympanic steroids are indicated.

It is recognised that presentation of SSNHL to an ENT specialist is often delayed, with resulting delay in treatment which may lead to reduced chance of recovery.<sup>4</sup> The reasons for this delay in presentation are likely to be multifactorial and may include a lack of awareness among patients and clinicians for the potential of sudden hearing loss to be sensorineural and a medical emergency. This most likely occurs due to the understandable initial assumption that new-onset hearing loss is most commonly due to a conductive cause such as wax impaction or glue ear following an upper respiratory illness. However, patients with NF2 are at significant increased risk of SSNHL due to their VS and the assumption that sudden hearing loss is most likely to be conductive is not appropriate and may lead to suboptimal management and outcomes for this otological emergency.

Alert Cards have been shown to improve patient and clinician response in other medical emergencies.<sup>5–7</sup> We hypothesised therefore that use of a patient Alert Card would increase patient and clinician understanding of the need for urgent audiological assessment of sudden hearing loss in

our at-risk population with the potential to reduce morbidity.

We aimed to determine if the introduction of a patient Alert Card would improve patient awareness of the need for urgent assessment of sudden hearing loss.

## MATERIALS AND METHODS

Adults attending for routine review in the Southwest NF2 clinics were included. Children, new referrals, patients with pre-existing profound deafness or auditory implants were excluded.

We created a guideline for the management of SSNHL in patients with NF2 in line with published guidance.<sup>8</sup> We designed a pocket-sized Alert Card (figure 1) for patients and clinician use. This was given to all patients attending clinic with a verbal explanation of the guideline.

Questionnaires were administered by specialist nurses, prior to receipt of the Alert Card. The questionnaire asked how a patient would respond to suffering sudden hearing loss over a weekend. Four answers were available, with a single answer indicating urgent assessment being considered the most appropriate choice ('correct answer').

The questionnaires and intervention were performed between September 2016 and July 2018. The questionnaire was re-administered to returning patients between December 2016 and November 2019. The questionnaire allowed patients to provide free-text comments relating to their answer.

Patients who presented with SSNHL out-of-hours during the study period were recorded as post-intervention patients and their actions marked according to the response they most closely resembled.

Correct answer frequency difference, between encounters, was analysed for significance by McNemar test. The project was approved by local governance for patient data collection.



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**WE ADVISE URGENT ASSESSMENT OF SUDDEN HEARING LOSS**

**If you notice a significant hearing loss:** ➔

- Contact the NF2 team Monday - Friday
- **If out of hours** visit your GP or A&E on the same day and take a copy of your latest audiogram.
- Ask them to visit the **OUH NF2 website** and follow the guideline on sudden onset hearing loss.

**We advise:** clinical assessment to differentiate between a conductive loss and a sensorineural loss. If sensorineural loss, steroids may be recommended.

Figure 1

## RESULTS

We received responses from 39 patients prior to intervention. Four patients were lost to follow-up: two receiving auditory implants, one relocating and one patient deceased. Before intervention, 15% (6/39) of respondents identified the need for urgent assessment whereas 85% (33/39) did not (figure 2). Following provision of an Alert Card and guideline explanation, the number of patients correctly identifying the need for urgent assessment improved to 47% (17/36 (p=0.0055)). Those patients who attended a second post-intervention review chose correctly in 100% (7/7) cases.

The most common non-urgent response selected, 'contacting the specialist office and awaiting advice', decreased from 58% (23/39) to 27% (10/36)

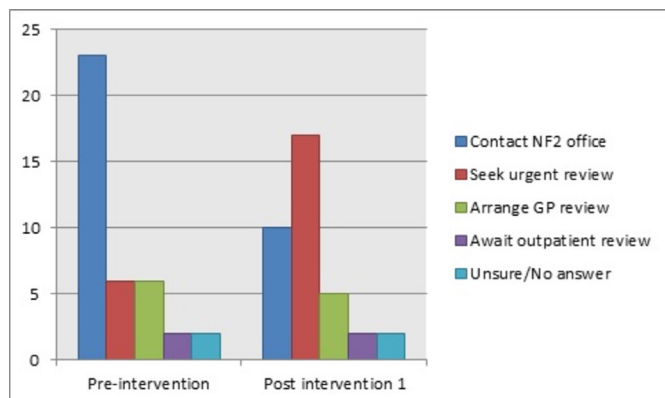


Figure 2 Change in response following intervention.

post-intervention (figure 2). Two patients experienced SSNHL during the study after August 2018 and were added to the post-intervention results.

## DISCUSSION

This study demonstrates initial low levels of patient awareness of the need for urgent assessment of SSNHL in the at-risk NF2 population. Alert Cards significantly improved expected patient response to sudden hearing loss. Of those patients who chose non-urgent assessment despite provision of an Alert Card, some offered free-text comments:

'Wouldn't think others would know about NF2, difficult explaining it all.'

'... A&E wait, no knowledge of NF2 so no point.'

'I know the answer is to go to A&E but if I'm honest, I doubt if do it as it seems a bit dramatic. Wouldn't they just suggest I go to the doctor's?'

The selected free-text comments show patient reluctance to attend urgent services despite provision of alert card advice. This is an area that may benefit from qualitative research exploring the reasons for these comments and beliefs.

Our study was limited by several factors: the questionnaire surveyed an expected response and in most cases did not record an actual response to sudden hearing loss. Furthermore, the study did not directly measure clinician response nor compare outcomes.

## CONCLUSION

Patient awareness of the need for urgent response to SSNHL is improved by the Alert Card and patient education. Since completion of this study, and discussion at our national NF2 symposium, NHSE recommendations include the use of Alert Cards across highly specialised services.<sup>9</sup>

This study supports the adoption of Alert Cards for SSNHL across all patients with NF2, and potentially sporadic vestibular schwannomas. This intervention is a low-cost, effective measure that has the potential for significant reduction in disability.

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