Improving the Quality of Referrals for Neuroimaging in Dementia

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Development of a new Early Diagnosis multidisciplinary Service

We developed a innovative early diagnosis neuroimaging service for Dementia in 2012 at the William Harvey Hospital ,Ashford Kent to facilitate early, accurate diagnosis in patients with uncertain diagnosis of cognitive impairment, mild cognitive impairment, complex and atypical Dementia presentations. These complex patients are discussed in the Dementia early diagnosis service where neuroradiology and nuclear medicine advice is sought on the structural and functional changes on various scans.

A multidisciplinary team was developed with Old Age psychiatrists, Radiologists, Nuclear medicine physicians from Kent& Medway NHS and Social Care Partnership Trust and East Kent Hospitals University Foundation Trust.

The team discussed, devised and adopted a common strategy which included clinical and imaging assessments and discussion of patients with cognitive disorders, followed by further discussions at the weekly neuroimaging multidisciplinary early diagnosis service to reach a consensus regarding diagnosis ,to consider treatment options including clinical advice for GP's whenever needed regarding follow up of patients. This was achieved with no additional financial resources but maximised utilization of already existing services and facilities.

The Service included weekly discussion of diagnostically difficult, atypical, complex cognitive impairment cases with their clinical assessment, cognitive tests (MMSE, ACE III), neuroimaging, preferably MRI or CT if former could not be done, further assessment with nuclear medicine scans if diagnosis was unclear, discussion of all relevant aspects at a devoted multidisciplinary team meeting and radiological advice for each patient.

Multidisciplinary team discussion records from the meetings were uploaded on to the PACS system in each patient's folder improving safety. GP's were informed about clinical discussions by Psychiatry along with providing advice regarding adequate follow up. Neuroimaging care pathways were created and a CT/MRI, SPECT dementia protocol was developed.

Aims

The Neuroradiology department at William Harvey Hospital, Kent in conjunction with CMHSOP (Community Mental Health Services for Older People), receives a

quality of referrals during weeks 1 to 3. This increase was accentuated between week 3 and 4, when the intervention was implemented, which stabilised once again onwards.

What was the learning point?

Looking solely on the trend of data plotted onto the run chart, it appears that our general aim to increase the quality of referrals was achieved (though not 100% as planned).

However, looking at the upwards trend present before our intervention was put into place, it was not clear the impact that the intervention had in facilitating this increase. There is a possibility of a confounding factor in action that we did not anticipate a priori. This factor may have unravelled with a longer period of data collection. Moreover, this highlighted the importance of a process measure, which would be the number of times GPs have accessed the referral support tool website to use the proforma. This may have allowed us to correlate the increase in quality of referrals with the intervention, which could not take place due to administrative reasons.

Also, the number of requests was not uniform throughout the weeks, with it ranging from 2 to 12 requests per week. Therefore, this added difficulty in comparing the values with statistical significance, which once again would have been tackled by a longer time frame, as some of the values could have been disregarded as an anomaly and had a less impact on the median value.

Impact on systems and sustainability

This project highlighted the importance of efficient communication between different departments and members of the healthcare team. Even though one aspect of clinical information may not appear to be crucial to one, it does not necessarily suggest that it can be omitted and this may hinder another member of the clinical team from getting a complete picture of the patient. In NHS, patients are not only looked after by one clinical team but rather through a multidisciplinary approach, meaning that appropriate handover of care between teams is vital. Without this, it would contribute to unnecessary cost to the NHS, stemming from repeated patient consultations, admissions, unessential diagnostic imaging and other avoidable means.

However, for this to be sustainable and used in practice by clinicians across the NHS, like this project aimed to achieve, it has to be concise and to the point. Although currently there are communication tools such as SBAR1 which allow for efficient communication between teams, in GP settings with limited time a more user friendly proforma like the one described in this project could come into use due to it's brevity making it sustainable for long-term usage.

Summary

Our project aimed to improve the average quality of referrals submitted to the neuroradiology department with regards to dementia screening by 100%. This was done by devising a short proforma including the vital clinical information needed for accurate interpretation of MRI/CT scans, which was then uploaded onto Referral Support Tool website to be accessed by GPs across SKC CCG. Although our project did not meet the initial aims, an upwards trend in the quality of referrals was observed, with a 78.6% increase at its maximal value. Also, the quality did not dip below that of

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Dementia Neuroimaging Protocol	
Exclusion Criteria	• Age ≥90 • History of Parkinson's Disease • Known contraindications to MRI
Date of last MRI	
Key symptoms	Cognitive assessment score: (e.g., ACE-III, MMSE, 6-CIT, GPCOG)
Presence of risk factors	• Hypertension • Diabetes Mellitus • Ischaemic heart disease • Hypercholesterolemia • Stroke/TIA • AF • History of head injury • Any learning disabilities • Existing diagnosis of MCI • Current/Previous Malignancy • Coagulopathy • Others
	Please specify:
Medications	
History of Alcohol Use (units/week)	
History of Smoking (pack-years)	

pre-intervention and was maintained during the time frame of the study, likely indicating that the improvements would be sustainable in the future.

To maintain the improvements, GPs would need to continue using the proforma in their future practices or include the information laid out in the proforma into their referral forms. For this to take place, further informing the GPs on the presence of this proforma would be essential, as well as obtaining feedback from the GPs who have used this proforma. Lastly, a system of incorporating this proforma into the current referral system, not only to be used as an adjunct, would greatly increase its use, which may be achievable after a discussion with the IT department.

Discussion

We felt that teamwork was one of the most important aspects of the project that led it to its completion. The collective ideas provided by each team member facilitated different stages of the project, allowed us to carry out each task more efficiently. However, it was difficult to assign specific roles for each team member at the start of the project, and in the future, this would help with the decision-making process, in the presence of a team leader.

The biggest barrier to the success was the limited time frame that was left to complete the project, brought on by a misunderstanding/miscommunication regarding the objectives of the project. Although we were allocated plenty of time to collect data on the quality of referrals before our intervention, we were not able to follow up on the impact of our intervention for a longer period, which may have led to a different outcome. This could be prevented by a thorough discussion and a clear project plan at the start of the study.

Moreover, we may have underestimated the time needed for the intervention to be implemented on to the website. There was not enough time to carry out our next PDSA cycle: to upload the form onto EMIS, a system widely used by GPs to refer their patients. Nevertheless, this intervention is currently being put into place, outside the time frame of this project, to further increase ease of access and improve the quality of referrals.

References:

1. Muller, M. et al. Impact of the communication and patient hand-off tool SBAR on patient safety: a systematic review. BMJ Open 8, e022202, doi:10.1136/bmjopen-2018-022202 (2018).