Development of a Health Informatics Working Group to Enhance the Conduct of Research in Primary Care

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Background

Experience gained from conducting primary care research supported by Keele Clinical Trials Unit (CTU), shows that targeted Health Informatic (HI) support early in the design phase enhances the conduct of research and improves recruitment and retention rates. Primary care infrastructure is complex and requires a number of different strategies which are innovative, efficient and transferable in order to successfully coordinate, recruit and retain both sites and participants in primary care research.

Keele CTU is a registered UKCRC CTU https://www.keele.ac.uk/kctu/, specialising in the development and delivery of both feasibility and definitive multicentre randomised clinical trials, an increasing portfolio of Clinical Trials of Investigational Medicinal Products (CTIMPs) and epidemiology studies in both primary care settings and at the secondary care interface. Keele CTU has a strong HI function, with over 12 years' experience in utilising primary care clinical systems and strong links with the NIHR Clinical Research Network: West Midlands (CRN WM). CRN WM is one of 15 clinical research delivery arms of the NHS, http://www.nihr.ac.uk/nihr-in-your-area/west-midlands/. They are responsible for ensuring the effective delivery of research within the primary care infrastructure throughout the WM area. A collaborative approach involving Keele CTU and CRN WM in the use of HI has been developed to embed clinical research within primary care settings.

Methods

When embedding research within the primary care setting, consideration must be paid not only to the engagement and motivation of the healthcare professional conducting the research but also the techniques proposed to allow the research to be performed. In general practice settings, identification of eligible participants for invitation to research is commonly undertaken through searching the general practice clinical system of registered participants, or by using 3rd party linked desktop software to identify patients eligible for recruitment during consultations[1]. As primary care providers face ever increasing time constraints there is an opportunity to use primary care clinical systems to more easily embed research within the primary care setting.

Keele CTU and CRN WM have a long history of embedding randomised controlled trials (RCTs) and observational studies within existing primary care clinical systems to maximize the opportunities of face to face contact with potential participants. To

enable growth, expansion and development of the experience gained, a joint HI Working Group (HIWG) between Keele CTU and CRN WM has been established to oversee, develop, support, track and quality assure the HI operational activity for research.

In the West Midlands, approximately 70% of general practices use the EMIS Web system, https://www.emishealth.com/products/emis-web/ as their choice of clinical system. The EMIS Web system has inbuilt functions and tools that can be utilised and tailored to embed and facilitate research activities. This makes it easier and more efficient for both the practitioner and the research team to conduct a study or trial in a general practice using the existing primary care clinical system.

A range of innovative methods have been developed by the HIWG, which can be embedded into existing GP clinical systems, primarily the EMIS Web system, to include;

- Feasibility, eligibility and recruitment searches[2] to identify potentially eligible patients for research studies.
- Electronic protocols / pop-ups[3,4,5,6,] which enable automated processes through a series of decisions and actions to aid patient screening, data entry, information display and auto populated documents.
- Automated clinical coding of research activity[3,4,5] using existing and bespoke study specific Read codes to record identification and eligibility to consent and assessments.
- Data collection templates[4,5,7], to include electronic tables or document templates which facilitate accurate and consistent data entry.
- Electronic tools, to aid referrals and clinical assessments with the ability to embed stratification and screening tools[3].

The methods are tailored on a bespoke basis to the requirements of individual clinical research teams to perform feasibility, identification, eligibility, screening, recruitment, tagging and data collection functions and are provided together with instructions for use.

Results

100% of Keele CTU supported research activity involving general practices have utilised the HIWG. The groups' innovations assist to implement a robust, standardised and automated, quality assured, method of performing research activity in primary care settings. Greater precision of sample identification, reduced paperwork and increased efficiencies can be achieved, assisting with the retention of research participants, resulting in accessible interrogation and interpretation of research data.

Discussion

We have demonstrated that these methods can be scaled up and transferred nationally. The Polymyalgia Rheumatica (PMR) Study[8] used an EMIS protocol that was distributed to 386 participating general practices across England. The protocol prospectively identified incidence cases of PMR when appropriate Read codes for PMR were entered by the general practitioner and then facilitated the completion of a

fax referral form to aid the invitation of eligible participants to the study. The 386 general practices identified 739 first time consulters with PMR during a 24 month recruitment period which resulted in 654 patients (88%) responding to the baseline questionnaire.

Whilst the HIWG specialises in using the EMIS Web clinical system some of the methods described here can also be developed within the other two main primary care clinical systems used in England, TPP SystmOne and INPS Vision, for scalability of the methods being developed nationally. As there is variability in CRN resourcing nationally, the HIWG standardises the conduct of research in primary care settings, improving consistency and engagement with the primary care research infrastructure. Thus making the use of the HIWG innovations an attractive option for research teams.

Conclusion

Utilising GP clinical systems to embed research tools, results in simple, efficient, automated effective methods for primary care partners to conduct research. Leading to an increase in clinical precision when identifying patients. Providing a good quality consistent approach to the clinical coding of research and output of high quality medical data to support research. Scaling up of the HIWG over time will allow the group to provide a service for other clinical systems and clinical research teams conducting research in the primary care setting.

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