1. Please summarize your achievements in 2016 and the results delivered. Please highlight and justify any deviations from the work plan.

Please see attached end of year 2016 report based on the first three months of the EIT Health JIGSAW-E project 1st October to 31st December 2016. This report presents the JIGSAW-E Community of Practice event, uptake of JIGSAW-E in the West Midlands, UK and in the Netherlands. Training for general practitioners (GPs), physiotherapists, practice nurses, project coordinators and health informatics leads is described along with preliminary audit data on use of the osteoarthritis (OA) e-template. Patient and public involvement and engagement (PPIE) also forms an integral part of this report.

JIGSAW-E Community of Practice event

We launched JIGSAW-E with a successful two day meeting of over 40 delegates with all five countries represented by their academic lead, the general practitioner champion, the practice nurse and/or physiotherapy champion, the patient champion, industry representatives and statisticians. The programme covered the JIGSAW-E project and progress thus far in the UK. Health Care in each of the countries was discussed and anticipated challenges were highlighted. Time for each country to discuss solutions to challenges within their team was a valued part of the programme. The event concluded with each Country stating their next steps.

Uptake of JIGSAW-E in the West Midlands, UK

JIGSAW-UK has five pilot sites which have implemented the approach and can now extend to other sites and locations within the region. The project team has been expanded to engage with healthcare practitioners and to support training of healthcare professionals in delivering the new approach in Shropshire, West Midlands.

Set-up of JIGSAW-E in the Netherlands

The project coordinator has set up a Community of Practice in the Netherlands that includes all members across the pathway of OA care (e.g. general practice, physiotherapy and PPIE). Translations of key patient facing material have been completed and along with training material are under review by patient and clinical champions. The GP lead has linked with an Industry collaborator to design the Dutch version of the OA e-template with input from the health Informatics Lead (UK).

Preliminary audit data on use of the OA e-template

The lead UK practice has now audited their uptake of the NICE OA guidelines using the OA e-template and results are in keeping with those achieved in the original research. Learning from this will allow ongoing audit against NICE Quality Standards for OA throughout the JIGSAW practices.

2. Individual Work Packages: Please provide a brief but comprehensive note on the scope and content of the work undertaken in 2016. Please provide any justification on any deviation from the Business Plan
JIGSAW-E is supporting primary care in five European countries to address the unmet needs of adults consulting for OA. An academic, educational, industry and health care partnership, from 5 European countries are implementing JIGSAW-E. The target groups are general practitioners, physiotherapists and practice nurses in the UK (WMAHSN), and in one region in each of Norway (Oslo), the Netherlands (Leiden, Rotterdam), Denmark (Southern Denmark) and Portugal (Algarve). Four key innovations for consultations with adults 45 years and over with hand, hip, knee and foot OA will be implemented:

1. An OA guidebook written by patients and health professionals for patients
2. A model OA consultation for primary care to deliver NICE recommendations
3. Training for general practitioners and practice nurses to deliver the model consultation

In the UK the lead Primary Care Practice is using the OA e-template (used to capture quality indicators of care) to audit current practice and evaluate successful implementation. Preliminary results show good uptake of the innovation. A pilot has been completed in one locality. We have appointed a lay Knowledge Broker; conducted training in the UK for general practitioners, nurses and physiotherapists; developed, installed and audited the OA e-template in the lead practice in the UK; developed a ‘training the trainers’ package for sharing with partners; held a local UK industry workshop.

With our European partners we are developing the model OA consultation and training materials for each country, starting with the Netherlands; we are seeking new industry collaborations for digital solutions and have active discussions with electronic medical record experts, a digital platform provider and an App developer. We have also established a European PPIE group.

The community of practice of the Netherlands in the JIGSAW-E study was formed in September 2016. In progress are the inclusion of 5 family physicians practices, the development of the e-template in cooperation with a company of one of the major family physicians information systems, and the translation of the English OA guidebook into Dutch. The JIGSAW-E PPIE group formed at the International Community of Practice: two active groups (Keele/Leiden) have reviewed patient facing material - the OA guidebook, and the OA Quality Indicators Questionnaire for patients.

3. Only for deliverables NOT-ACHIEVED: please note here and provide clear justification. Also, if deliverable is incomplete, describe the level of the completeness on a scale between 0% and 100%.

4. KPIs: Please refer to all KPIs explaining what was delivered / not delivered. (see help box for example).

All the KPIs have been met for 2016.

The OA template and protocol have been developed in partnership with EMIS web and have been successfully installed into the 5 UK practices. The template has been developed to fire in consultation on the input of a read code within the EMIS system for joint pain. The guidebook is being used in the 5 UK practices as part of the initial consultation and onward self-management support for the patients with Osteoarthritis in hard copy format. It is also available in a PDF version. The guidebook has also
been successfully translated into Dutch and is currently with the patient group in the Netherlands for them to review in relation to cultural adaptations and appropriate photos.

Primary care pathways and Osteoarthritis clinics have been implemented in the 5 UK practices to provide the specific support for the patients. An agreement has been put in place to support the practices with the implementation of the project. Project management support is being provided to the practice by the project team and local clinical champions.

The team have worked hard to develop the training package and engage with Health Professionals across the three UK localities in the enhanced care approach for Osteoarthritis. The training package has programmes for the differing clinician groups playing a role in the self-management support of Osteoarthritis, reflecting the care pathways in the different localities. The package has been taken out to the localities and careful thought has been given to ensure the correct academic clinicians have lead the delivery of each programme to enhance the effectiveness of the training.

The collaboration with EMIS web has been vital in the development of the e-template for the project and has resulted in a high quality tool for use in primary care consultation. The team are currently working with SystmOne to develop the template using their clinical system. Within the Netherlands, the project team have begun their collaboration with the medical IT company, Pro-medical to develop a version of the e-template within their system for use in the 5 identified GP practices for the project. Collaborations have also begun with Danish company EG Healthcare who are keen to work with the Denmark team and the wider community of practice for the JIGSAW-E project to provide IT support for innovation and development.

5. Partnership: Please describe the role and summarize the key contributions of the lead partner, and all other partners.

The Lead Partner at Keele has oversight and management of the whole project as well as providing site-specific leadership of the local implementation in the UK. It oversees all aspects of project management and reporting including financial leadership. We have agreed an International Steering Group including patient and public involvement to oversee the progress and governance of the project. A Professor of Consultation Epidemiology can offer advice on statistical issues relating to audit data.

For the UK, Keele has a dedicated core team with PPIE and Champion clinicians. It has close ties with clinical Leaders in the local health economy. This model of a core team is replicated in the other countries with the appointment of dedicated project coordinator working closely with the local PI. The Lead GP in the UK is also the professional link to GPs in the other sites as are the Physiotherapy lead and Practice Nurse lead. The UK Health Informatics lead provides links across the different health systems to support the implementation of the OA e-template within electronic medical records. PPIE is operationalised across and within each site.

This model has been replicated with each partner country – ie a leader for the project and project coordinator has been established in each country, all of whom have established a small community of practice for their region considering the challenges within their areas relating to JIGSAW-E. In line
with the business plan, the Netherlands have a fully established community practice including PPIE and are launching JIGSAW-E following the UK. Each subsequent country will then move to implementation phase. Each country also has links with their local EIT-Health community e.g. West Midlands AHSN, London and Ireland, Netherlands.

6. **Lessons learnt.**

Outstanding Project Management is an essential ingredient to a successful implementation project including the communication across/within teams, with the WM AHSN and EIT-Health. We have a strong team with high quality, specialist expertise and this is necessary for the development of a core team who can support new teams through the implementation process. A phased approach to bringing on each site is also working well.

Auditing the impact of the innovation in health care can be achieved by starting with a Lead Practice and clarifying the issues and pathways to successful audit in multiple practices. A contractual agreement to share anonymised clinical audit data is helpful when considering aggregating data. In some settings where ethical approval is straightforward, this can be sought to allow implementation teams develop audit reports. Currently anonymised audit data will be reported at practice level with the support of the core JIGSAW-E team in each country.

There are several well designed implementation trials and programmes for increasing the uptake of OA guidelines in progress e.g. BART in the Netherlands; MOSAICS and JIGSAW in the UK; G:LAD in Denmark; Active-A in Norway. Understanding the similarities and differences between countries can offer potential solutions for the community of practice as a whole and building new innovation on the back of existing programmes is very useful. Implementing a package of care is more efficient than implementing a single study or innovation.

An understanding of knowledge mobilisation, theory and practice, is essential to successful project delivery. Recognising the place of pilot studies has been helpful in relation to scaling up and scaling out of innovation.

Meeting Innostars in London was a stimulating experience and sharing time thinking about the challenges and solutions was time well spent.

Networking at the EIT-Health Summit in Barcelona identified further key learning such as: every big idea has a great team around it to make it happen; learn how to add value/know where the biggest differences can be made (eg Leap-frogging); harness the Silver Economy; move from pilots to show what’s possible; transform cultures; Incubate, Validate, Scale up and Scale out; imitating best practice is difficult; bring senior leaders to the table to witness the hard work of knowledge mobilisation; make a convincing narrative (for health care professionals and patients). Other key ingredients are: being nimble in innovation; networking; be a learning organisation; developing a trust with partners; relationships are key.

7. **Success stories.**
JIGSAW-E Community of Practice event: We launched JIGSAW-E with a successful two day meeting of over 40 delegates with all five countries represented. This formed the basis of one JIGSAW-E Community of Practice and initiated the development of other Community of Practices in primary care in each country that hadn’t been formed previously. The UK and Netherlands have established strong communities of practice that has met all KPIs in line with the business plan.

We have a new and dedicated International PPIE group with Patient Champions across the five participating organisations. Keele and Leiden deliver the infrastructure support and leadership to his network. There are plans to write this up for publication.

Networking at the EIT-Health Summit in Barcelona identified a potential new partner in France who felt that implementation of the JIGSAW-E project would be suitable for their own primary care.

Physiotherapists and Health Lifestyle Advisors are now formally involved in the implementation of JIGSAW-E which has been stimulated by the project. New members of the local clinical team are making themselves known to the team and are becoming Clinical Champions. The implementation work has expanded the reach of JIGSAW by targeting physiotherapists and Health Lifestyle Advisors to deliver best-practice for OA care. A physiotherapist Community of Practice was has been formed including academics from Centres of Excellence in primary care and physiotherapy research, Consultant and Extended Scope Practitioners, research facilitators, service commissioners and patient representatives who have helped to shape the physiotherapy model of care. A physiotherapy OA workshop day was designed, advertised and delivered covering NICE core interventions including communication and explanations of OA, myth busting around OA, supported goal setting, individualised exercise and physical activity, advice regarding diet, and medication information. Local family physician practices were negotiated with to deliver physiotherapy led OA best practice services.

A new primary care OA specialist service has been set up in a family physician practice by a physiotherapy OA champion. Three existing physiotherapy primary care services have embedded NICE quality standards into their services. OA stakeholders including physiotherapists, patient representatives, health professionals and service commissioners have engaged with JIGSAW-E (healthcare practitioners trained = 127).

8. Are there any spin-off activities / projects that have been developed with EIT Health partners, or as a result of this EIT Health activity?

The CI was an invited co-applicant for a Horizon 2020 proposal to train new clinical academics via PhDs in research methods including implementation and PPIE.

The West Midlands AHSN has championed the work of JIGSAW-E at a recent Innostars meeting in London (December, 2016) and there are plans to approach some of these organisation to build a new proposal for an EIT-Health submission to Innovation by Ideas.

Networking at the EIT-Health Summit in Barcelona identified another EIT-Health project that plans to host a Summer School in Keele in 2017 and we have offered to support this.

Networking at the EIT-Health Summit in Barcelona identified a potential new partner in France who felt that implementation of the JIGSAW-E project would be suitable for their own primary care. A new
meeting has been set up for the CI and EIT-Health French collaborators to consider another set of pilot sites in France.

9. **What will be the impact of your activity beyond its initial duration? Please provide also suggestions on how this impact can be measured.**

JIGSAW-E has already been recognised by the International Inventory of OA programmes promoted by the Osteoarthritis Research Society International. The impact of JIGSAW-E will be captured via the project coordinator where any activity linked with the project will be recorded. The activity will then be developed as part of an Impact Case study for the Research Excellence Framework, UK 2021. Impacts measured will include: health improvements such as increased quality of care; Societal impact such as recognition of joint pain in older adults; changes in public policy and services (including citations); changes in health services; endorsements and recognition from professional bodies; International practice guidelines; reports and publications; economic impact; Industry and commercial impact such as new collaborations with SMEs; numbers of undergraduate and postgraduate training and changes to curriculum development; new applications of JIGSAW-E innovations such as Quality Indicators of Care; new IP; awards; media/social media and website metrics.

10. **Activities continuing into 2017: Based on 2016 learnings, will you adapt your plans for 2017/2018, if yes, how?**

A digital platform to enhance consultations by general practitioners will be developed and tested. Our 2016 3 month introductory phase has supported the concept on bringing each country into the project on a phased basis. The potential for pilot sites in France will be worked into the 2018 plan of activity.

11. **Website for the Activity**

The Website will be developed in 2017.