

Impact case study (REF3b)

<p>Institution: University of Central Lancashire</p>
<p>Unit of Assessment: UoA: 4 - Psychology, Psychiatry and Neuroscience</p>
<p>Title of case study: Health-related quality of life measurement in clinical trials.</p>
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>Ensuring that a new medicine improves or maintains a person's quality of life is important. Abbott's longstanding collaborative relationship with health professionals and service users has enabled the development of two patient-reported, quality of life instruments (CFQoL, LupusQoL). Abbott's expertise has contributed to the development of policy/guidelines concerning quality of life measurement in clinical trials for the European Medicines Agency and European Cystic Fibrosis Society. The instruments have been adopted internationally with the LupusQoL providing a global business opportunity for a US translation company. At the request of pharmaceutical companies, the LupusQoL is translated into the numerous languages required for use in their multi-national clinical trials of new medicines.</p>
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>When deciding if a medicine is of benefit it is important to obtain the patient's perspective, allowing service users a voice in their healthcare. Health-related quality of life (HRQoL) measurement is able to do this and refers to the physical, psychological and social wellbeing as perceived by the individual. HRQoL Questionnaires (instruments) can provide a standardised, valid and reliable way of gaining the patients' perspective as to the benefits, limitations and safety of a specific intervention. Regulatory authorities, who approve the licensing of medicines, now require the inclusion of HRQoL in clinical trials in addition to clinical outcomes and therefore quality of life information is becoming important in drug labelling claims.</p> <p>Abbott's HRQoL research (undertaken at UCLan 1995-date) involves the development and validation of two disease-specific health-related quality of life instruments: the Cystic Fibrosis Quality of Life questionnaire (CFQoL)¹ and the LUPUSQoL^{2,3}, an instrument to evaluate the quality of life in people with systemic lupus erythematosus. Key collaborators include Professor Webb, Consultant Physician, South Manchester NHS Trust, Dr Conway, Consultant Physician, Leeds NHS Trust and Dr Teh, Consultant Physician, East Lancashire NHS Trust, with peer reviewed grants from NHS Executive North West R&D Directorate, Lupus UK and Arthritis UK. The original papers, reporting the development and validation of these instruments, were published in high quality medical journals (CFQoL: <i>Thorax</i> [Impact Factor 8.38, 120+ citations]; LupusQoL: <i>Arthritis Care Research</i> [Impact Factor 3.73, 65+ citations]). The CFQoL was developed prior to the regulatory bodies requiring the inclusion of patient-reported quality of life instruments in clinical trials, but the development and evaluation process and sustained multidisciplinary research endeavour using the CFQoL, enabled Abbott to develop expertise in quality of life measurement. The subsequent development of the LupusQoL, at a time when HRQoL measurement was becoming obligatory, enabled commercial activity.</p> <p>Abbott's longstanding reciprocal relationships with multidisciplinary health professionals (who use HRQoL questionnaires in their clinical practice and research) and service users (whose completion of the questionnaires indicate improved or deteriorating quality of life) enabled methodologically rigorous research. This joint effort at every stage of the development and evaluation process (with patient and health professional users contributing a wealth of expert knowledge and experience) has resulted in comprehensive instruments in which each item is important and meaningful for people with the condition. The psychometric properties of the instruments have been demonstrated to be robust with excellent levels of reliability and validity^{1,2}. International collaboration, and global</p>

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interest from industry, has resulted in these instruments being translated into numerous languages. Further research has identified demographic, clinical and coping variables that explain aspects of patient reports and aid data interpretation^{3,4}. For example, Abbott has shown that aspects of quality of life can predict survival in cystic fibrosis⁵. This not only demonstrates the significance of patient-reported outcomes in the clinical management of the disease, but illustrates the importance of selecting such outcomes in clinical trials. To aid the interpretation of the CFQoL by clinicians, Abbott has subsequently evaluated the natural reporting of quality of life over many years providing a benchmark to judge clinical relevance⁶. Similarly, in collaboration with clinicians, a current national, multi-centre study aims to provide information to help them easily interpret the LupusQoL scores.

3. References to the research (indicative maximum of six references)

The research underpinning the impact was published in high quality international journals as evidenced below.

1. Gee L, Abbott J, Conway S, Etherington C, Webb AK. (2000). Development and validation of a disease specific health related quality of life measure for adults and adolescents with cystic fibrosis. *Thorax*, 55, 946-954.
2. McElhone K, Abbott J, Teh LS. et al. (2007). The development and validation of a disease-specific quality of life instrument for adults with systemic lupus erythematosus. *Arthritis Care and Research*, 57, 972-979.
3. McElhone K, Abbott J, Gray J, Williams A, Teh LS. (2010). Patient perspective of Systemic Lupus Erythematosus in relation to Health-related Quality of Life Concepts. A qualitative Study. *Lupus*, 19, 1640-1647.
4. McElhone K, Castelino M, Abbott J, Bruce IN, Ahmad, Y, Shelmerdine J, Peers K, Isenberg D, Ferenkeh-Koroma A, Griffiths B, Akil M, Maddison P, Gordon C, Teh LS. (2010). The LupusQoL and associations with demographic and clinical parameters in patients with Systemic Lupus Erythematosus (SLE). *Journal of Rheumatology*, 37, 2273-2279.
5. Abbott J, Hart A, Morton AM, Dey P, Conway SP, Webb AK. (2009). Can health-related quality of life predict survival in adults with cystic fibrosis? *American Journal of Respiratory and Critical Care Medicine*, 17, 954-58.
6. Abbott J, Hurley MA, Morton AM, Conway SP. (2013). Longitudinal Association between Lung Function and Health-Related Quality of Life in Cystic Fibrosis. *Thorax*, 68:149-154.

4. Details of the impact (indicative maximum 750 words)**Policy development for clinical trials**

The portfolio of sustained research activity has facilitated the building of relationships with regulatory bodies, professional societies, user groups and industry (e.g. European Medicines Agency, European Cystic Fibrosis Society, UK Cystic Fibrosis Advocacy Service, Corporate Translations Inc.). This has led to Abbott's expertise in quality of life measurement being in demand. Abbott has been invited to participate in continuous contributions to the UK Cystic Fibrosis Trust (Clinical Trials Advisory Group) and the European Cystic Fibrosis Society (Scientific committee 2009-date). Programmes of longitudinal research have subsequently highlighted the importance of HRQoL measurement and allowing service users a voice in their healthcare^{5,6,a}. This research has aided the development of European policy in relation to the use and interpretation of quality of life data in clinical trials. In 2007, Abbott contributed to the European Cystic Fibrosis Society consensus report concerning clinical trials in cystic fibrosis. Subsequently, as part of the European Framework 6 programme (LSHM-CT-2005-018932, EuroCareCF), Abbott led the European quality of life group to produce the guidelines for the measurement of quality of life in clinical trials in cystic fibrosis^b. Currently, Abbott is a member of an International multidisciplinary group (invited by the US Cystic Fibrosis Foundation and European Cystic Fibrosis Society) to develop and implement guidelines for the assessment and management of anxiety and depression in cystic fibrosis.

Additionally, Abbott was invited, by the European Cystic Fibrosis Society, to join an interdisciplinary

group of nine world experts on Cystic Fibrosis to work with the European Medicines Agency (EMA). The EMA is the body that regulates licences and constantly monitors the safety of medicines across the European Union. Together with European drug regulators, representatives from international pharmaceutical companies, and patient representatives, Abbott discussed and compiled current scientific evidence on outcome measures for evaluating medicines targeting CF lung disease. She provided expert advice concerning patient-reported outcome measures in clinical trials and contributed to the revision of the EMA guidelines on 'the clinical development of medicinal products for the treatment of cystic fibrosis'. The proceedings were observed globally by the US Food and Drugs Administration, Pharmaceuticals and Medical Devices Agency, Japan and Health Canada via broadcasting^c. This EMA policy development has informed further research given the impetus to develop a brief global instrument to measure patient-reported improvement and treatment burden in cystic fibrosis clinical trials. Hence, impact is a reciprocal two-way process.

Commercial applications outside academia

The LupusQoL has attracted global interest from the pharmaceutical sector. Inclusion of a patient-reported quality of life instrument in clinical trials is essential and will enable a pharmaceutical company to gain approval to market a drug and make licensing claims as to the effectiveness of the drug from the patient perspective. Driven by demand from pharmaceutical companies to translate the LupusQoL into numerous languages so that the instrument could be used in multi-national drug trials, a US translation company, Corporate Translations Inc^{d,e}, have developed a new business opportunity by translating and culturally validating the LupusQoL. This involves a lengthy and rigorous harmonisation process and cognitive debriefing with patients to assess the clarity and acceptability of each translation. They report the instrument has been used successfully in 51 countries in 77 different languages^f. UCLan's licensing agreement is for Corporate Translations Inc. to be the sole worldwide distributor of the LupusQoL and as such they have developed and maintain the website^e. The LupusQoL is currently being used in several phase 1/11 clinical trials (predominantly in North America) to evaluate whether a specific drug can improve a patient's quality of life^g. If the products are shown to be effective the pharmaceutical company will be able to generate new and increased revenue streams (and patients will benefit from a drug that can improve their quality of life).

Commercial exploitation of the LupusQoL by the University

Through UCLan's Innovation and Enterprise Unit and Strategic Development Services a new business model was identified and negotiated with partners (East Lancashire NHS Trust, Corporate Translations Inc.) to allow the sharing of Intellectual Property income^h. The LupusQoL is free to non-commercially funded research projects and for use in clinical practice, but there is a charge of £5.00 per patient entered into a commercially funded research study. The licence income received from pharmaceutical companies is approximately £32K; from the administration of approximately 6400 LupusQoL questionnaires in various international clinical trials.

Education and Capacity building

The research programmes have contributed to individual career development and the delivery of highly skilled people to the NHS and society. Dr Gee (PhD student and Research Fellow involved in the CFQoL) operates a clinical psychology consultancy service and Dr. McElhone (PhD student and Research Associate involved in the LupusQoL) is employed as a Specialist Lupus Research Nurse (East Lancashire NHS Trust) and Senior Research Fellow (University of Manchester). They have acquired specialist knowledge in quality of life measurement and patient-reported outcomesⁱ.

5. Sources to corroborate the impact (indicative maximum of 10 references)

Example of media coverage

- a. American press – patient-reported quality of life predicts survival in cystic fibrosis.
<http://www.medpagetoday.com/Pulmonology/CysticFibrosis/12283>
<http://www.physorg.com/news149750128.html>

Policy development - Consensus Reports for the European Cystic Fibrosis Society

- b. Abbott J, Hart A, Havermans T, Matossian A, Goldbeck L, Barreto C, Bergsten-Brucefors A, Besier T, Catastini P, Lupi F & Staab D. Measuring health-related quality of life in clinical trials in cystic fibrosis. *Journal of Cystic Fibrosis* 2011;10,Suppl 1:S82-85.

Policy development in Clinical trials

- c. European Medicines Agency (evidence of expert)
http://www.ema.europa.eu/docs/en_GB/document_library/Agenda/2012/07/WC500129307.pdf

http://www.ema.europa.eu/docs/en_GB/document_library/Report/2012/12/WC500136159.pdf

Commercial applications outside academia

- d. Contact 1: Mary Gawlicki, President, Corporate Translations Inc., North America.
- e. Corporate Translations Inc. host the LupusQoL website - www.lupusqol.com
- f. Evidence of language translations:
<http://www.corptransinc.com/Sites/LupusQoL/Translations/Available-Translations.aspx>
- g. Evidence of the LupusQoL being used in clinical trials (all trials are registered with *clinicaltrials.gov*):
<http://www.corptransinc.com/Sites/LupusQoL/Instrument-Information/Clinical-Trials.aspx>

Commercial exploitation of the LupusQoL by the University

- h. External evidence of income from the LupusQoL
Contact 2: Catherine Gedling, Research Governance Manager, East Lancashire NHS Trust

Education, capacity building and delivery of highly skilled people to the NHS

- i. PhD. Quality of life in adults with Cystic Fibrosis. (Louise Gee, Awarded 1999, University of Central Lancashire). <http://www.pearceandgee.co.uk/services>
PhD. Disease characteristics, treatment adherence and Quality of Life in SLE. (Kathy McElhone, Awarded 2006, University of Central Lancashire).