

Developing Research on Performance-Based Functional Work Assessment: Report on the First International Functional Capacity Evaluation Research Meeting

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Abstract *Introduction* Research on Performance-Based Work Assessment, also known as Functional Capacity Evaluation (FCE), has evolved substantially over the past decades. Although this field of research has developed, the use of FCE has been an object of discussion and debate internationally. Unfortunately, there has been no platform or infrastructure available for FCE researchers to present their research, discuss, and collaborate. *Methods* An International FCE Research Meeting was held in Haren, The Netherlands on October 25, 2012, with 48 participants from eight countries. The meeting consisted of presentation of new research, two debates, and an open discussion that aimed at creating an overview of gaps in research as identified by the participants. *Results* The discussion resulted in the identification of 17 research needs, which are listed in this paper. Important categories were: further validation of FCE across settings, jurisdictions and patient groups; additional impact and cost-effectiveness evaluation of FCE compared to alternatives; and the use of ICF as guiding framework. *Conclusion* Researchers, clinicians, and other professionals in the FCE area are interested in improving the quality and content of FCE research by

setting a common set of priorities and creating an international peer network.

Keywords Functional capacity evaluation · Work assessment · Disability evaluation · Knowledge transfer

Background

Research on Performance-Based Functional Worker Assessment, also known as Functional Capacity Evaluation (FCE), has evolved substantially over the past decades. A brief PubMed search from 1990 to September 2012 reveals over 130 papers published in peer-reviewed literature written in English (Key-words: functional capacity evaluation, and the names of key authors). Of those papers, 73 % provided new original data, 18 % were opinion papers, and 9 % were (systematic) reviews. FCE research producing countries were: the Netherlands (38 % of the publications), Canada (17 %), USA (20 %), Australia (12 %), Germany (4 %), Switzerland (4 %), Hong Kong/China (3 %), South Africa (1 %) and Israel (1 %). The papers were published in 33 Journals, of which the most frequent (≥ 5 %) were: Journal of Occupational Rehabilitation (29 %), WORK (17 %), Archives of Physical Medicine and Rehabilitation (7 %), and Disability & Rehabilitation (6 %). Over 90 % of the articles have been published since the year 2000.

Although this field of research has evolved, FCE results and its clinical applicability have been subject to diverse interpretations leading to discussions in international literature related to prognostic value of FCE and use in sincerity-of-effort determinations [1–6]. Different theoretical frameworks, developed and adapted by clinicians, researchers and commercial parties, have led to substantial controversies. This includes whether FCE results should be

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interpreted within a biomedical or biopsychosocial orientation, and whether FCE should be used to detect sincerity of effort. Unfortunately, there has been no platform or infrastructure available for FCE researchers to present their research, discuss, and collaborate.

Methods

To provide an opportunity for FCE researchers to meet, an International FCE Research Conference was held in Haren, The Netherlands on October 25, 2012. The date and place were chosen adjacent to the 2012 Work Disability Prevention and Integration conference (WDPI). Following a call for abstracts and scientific appraisal of submissions by a scientific committee, 12 abstracts were selected for presentation. Invitations to the meeting were also sent out to all researchers who have published studies related to FCE and disseminated through their networks. Forty-eight individuals attended the meeting, representing eight countries (The Netherlands, Canada, USA, UK, Germany, Switzerland, Australia and South Africa). Participants included practicing FCE clinicians, researchers and other professionals in the field.

At the meeting the organizers aimed to provide a venue for presentation of new projects and to foster discussion. Therefore, the format included brief presentations followed by open discussion. (Individual presenter files are available from the meeting website at the following link: www.umcg.nl/NL/UMCG/AFDELINGEN/CENTRUMVOORREVALIDATIE/RESEARCHONDERWIJS/POSTWDPIMEETINGFCE). In addition to the presentation of new research, the FCE research meeting contained two debates between experienced researchers in the field ('Pro's and con's for normative values in FCE', and 'Specific or generic protocols?') Following these presentation, an open discussion was facilitated that aimed to create an overview of gaps in research as identified by the participants.

Results

Based on critical and lively discussion, the following research needs were identified at the conference (listed without suggestion to prioritization):

- Use the International Classification of Functioning, Disability and Health (ICF) as a guiding framework to develop a common language of worker-job match factors, definitions and scales to characterize the overall match between workers and jobs for FCEs;
- Evaluate different FCE protocols or test approaches in clinical trials to determine their relative effectiveness for promoting the return-to-work process;
- Evaluate FCE's value in the rehabilitation and return-to-work process compared to or in addition to non-performance-based medical evaluations or questionnaires;
- Study monetary cost-benefit of additional value of FCE, compared to or in addition to non-performance-based medical evaluations or questionnaires;
- Evaluate FCE's value in the rehabilitation and return-to-work process and monetary cost-benefit within differing contexts;
- Evaluate whether the field is best served through proprietary protocols or whether other alternatives would be more suitable;
- Develop a 'pool' of validated functional performance test items from different FCE protocols that should be available without charge to clinicians and researchers (i.e. 'open access' protocols);
- Develop an FCE database providing descriptions and evidence based information of validated protocols and tests;
- Validate of both functional assessment procedures and procedures to assess occupational workload;
- Study whether a 'capacity buffer' is related to better sustained work functioning (capacity buffer: possessing a higher functional capacity than minimally needed to meet workload);
- Study relationships between safety as defined within FCE approaches/models and the National Institute for Occupational Safety and Health (NIOSH);
- Develop and validate FCE for 'new work', i.e. computer based sedentary work;
- Develop valid and reliable criteria for physical effort determination in non-material handling tests (e.g. measuring postural tolerance, ambulation);
- Develop an evidence based FCE guideline, which should apply across jurisdictions and professional specialties;
- Determine the factors influencing performance during FCE including characteristics of the assessor, client being assessed, test environment, and purpose of assessment;
- Study the use and implementation of performance-based worker assessment in developing nations, especially where funds are not available for purchasing proprietary protocols;
- Collaborate to develop or validate new FCE and Functional Job Analysis methods that may be included in open access protocols (without conflict with proprietary FCE brands).

Future Directions

This meeting highlighted the variability of FCE use, emphasized by the international representation and the different systems in which clinicians and researchers operate. The interest and enthusiasm of FCE clinicians and researchers to develop more evidence around the use of FCEs in practice, particularly relating to the effectiveness, validity and economic benefits of FCEs was encouraging.

Based on the success of this first conference, attendees have agreed to meet again. The Second International FCE meeting is again planned adjacent to the WDPI meeting, to be held in Toronto, Canada in September 2014. Details of this meeting are currently unavailable but interested readers are advised to contact the authors. Another outcome of this FCE meeting was to further develop an international network of researchers, clinicians, and other professionals in the area. This network will be used to provide interested individuals with additional information that will be forthcoming as the conference organization progresses.

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