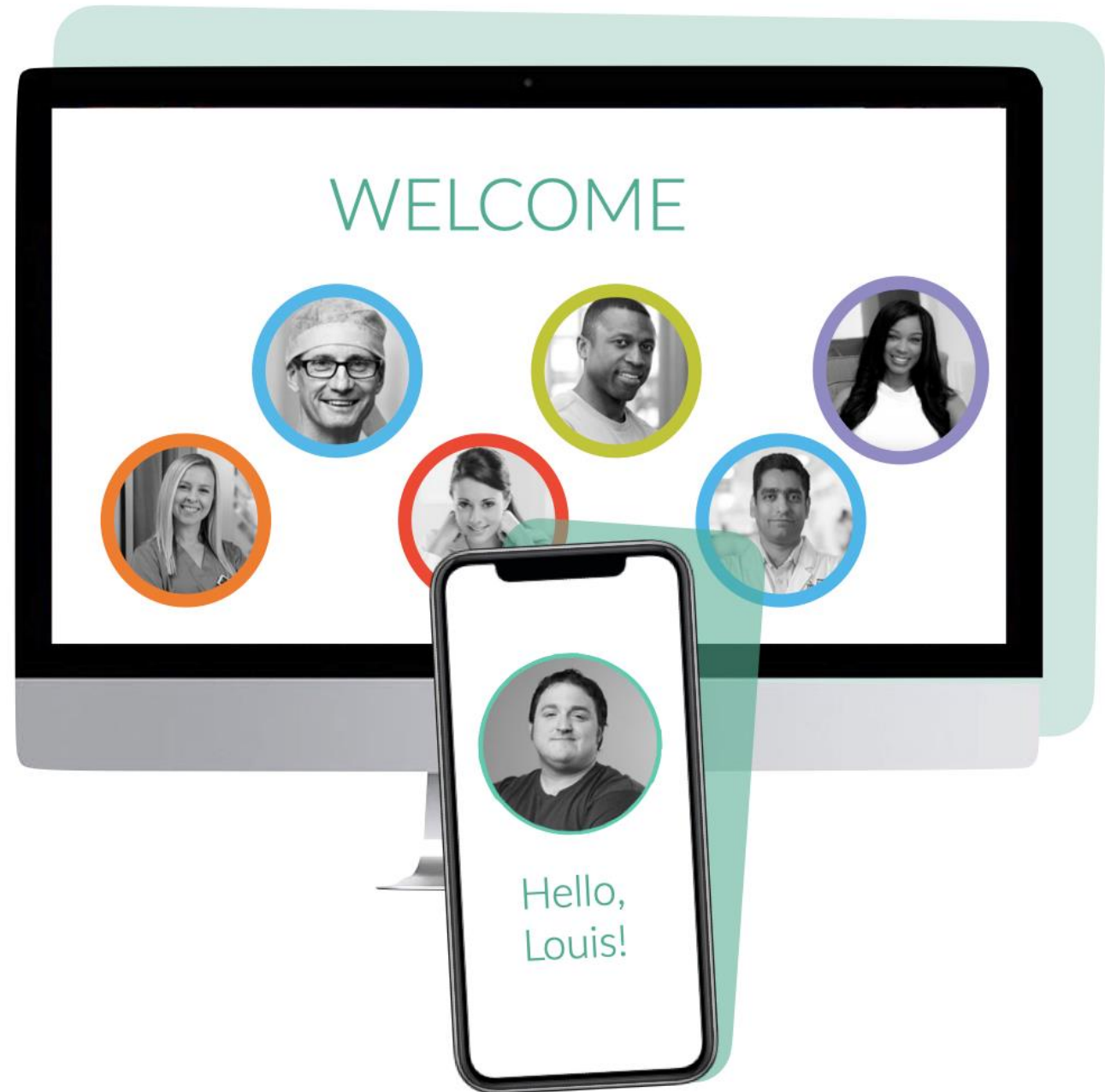
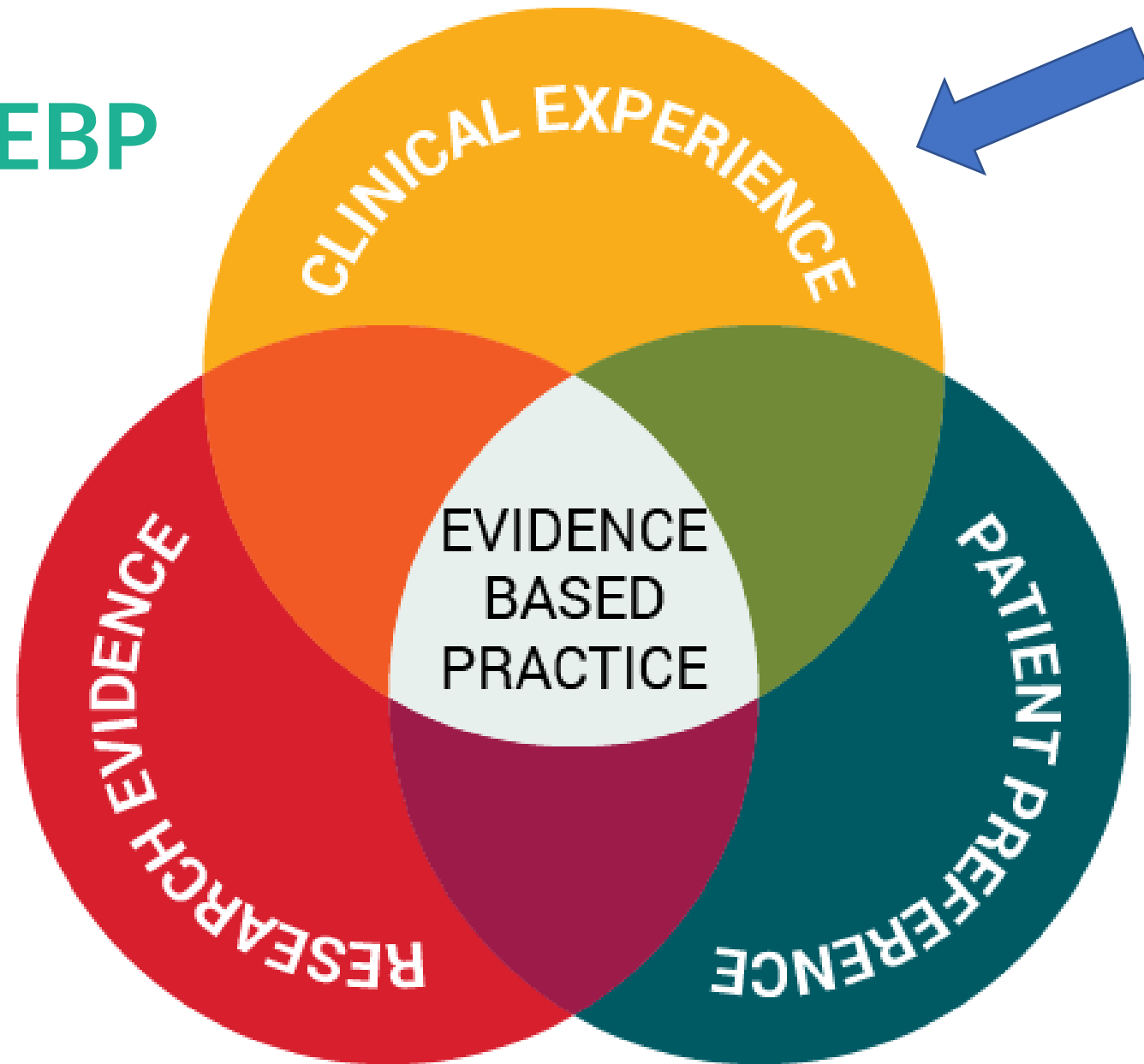


Is telerehabilitation after hip or knee replacement EBP?

Julien Lebleu
Femke Smeets



Pillars of EBP



Multi-disciplinary approach to orthopaedic care

We are ...

- _ Physiotherapists 50% !
- _ Doctors |
- _ Treating surgeon |

But also engineers, business developers, IT, quality responsables

We collaborate with:

- _ Nurses
- _ Hospital support staff
- _ Psychologists
- _ Academic researchers

We take pride in

- _ Keeping the human touch in digital care

We treat patients in

- _ Belgium, France, Netherlands, Germany and soon United states



Continuous feedback loop



What does the physiotherapist think of telerehabilitation ?

Survey in Belgium by Uantwerp during pandemic

De Baets et al – paper under preparation

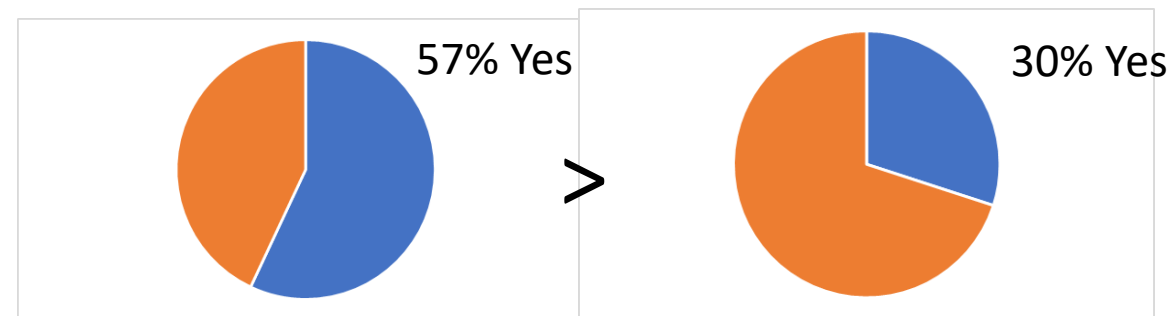
183 patients
35 used telerehab

1567 therapists
643 used telerehab

Patients

Therapist

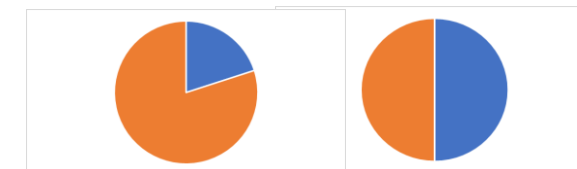
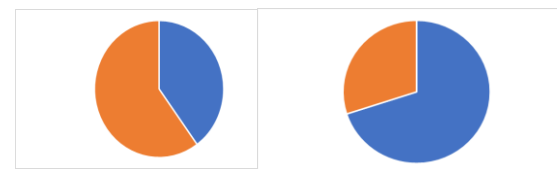
Is video or phone consultation an option in combination with physical sessions ?



Impact of experience on intention of use

40% for non-experienced
70% for experienced

20% for non-experienced
50% for experienced

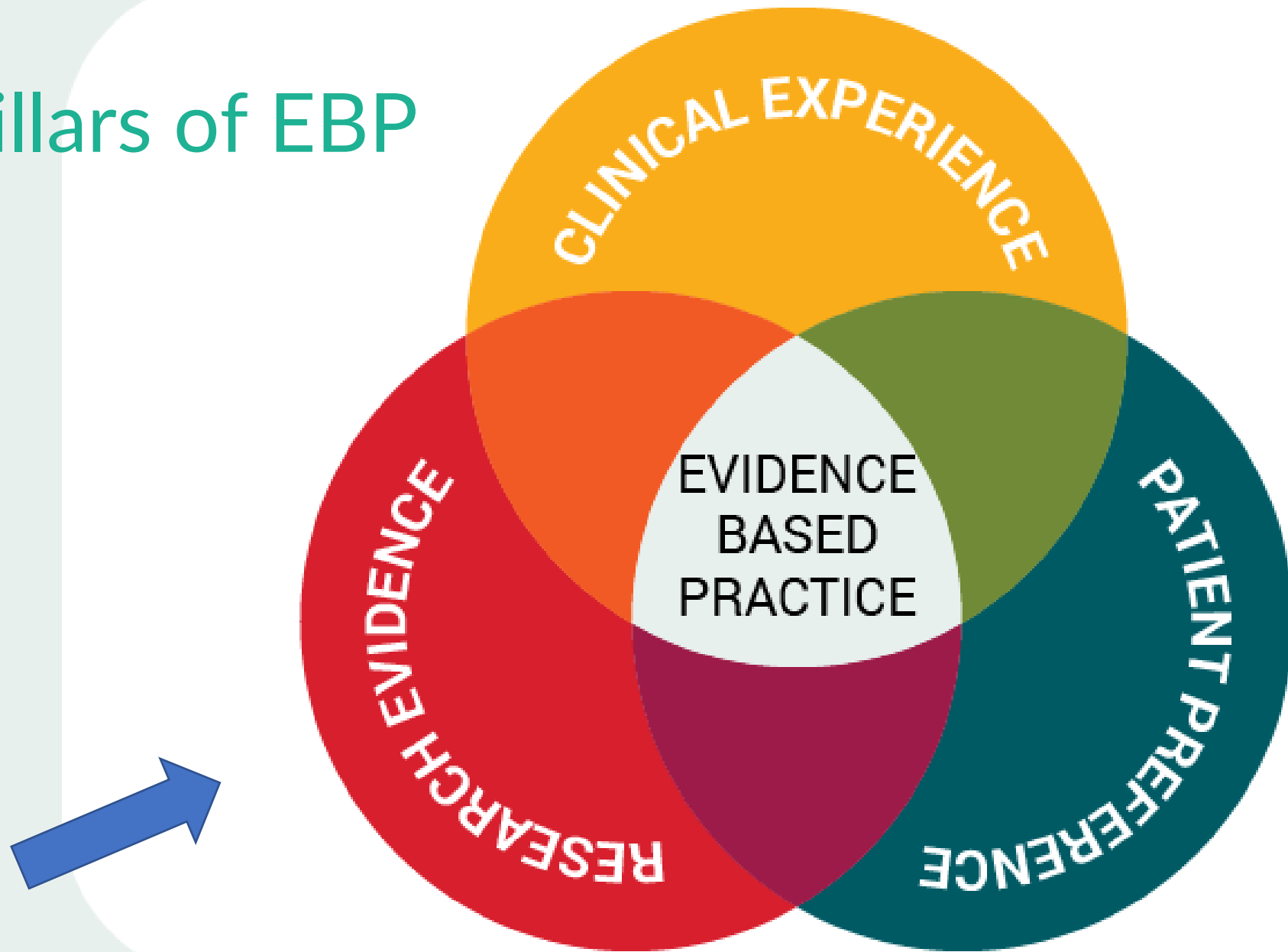


The advantages ?

70%
Win time
No displacement

60%
More autonomy

Pillars of EBP



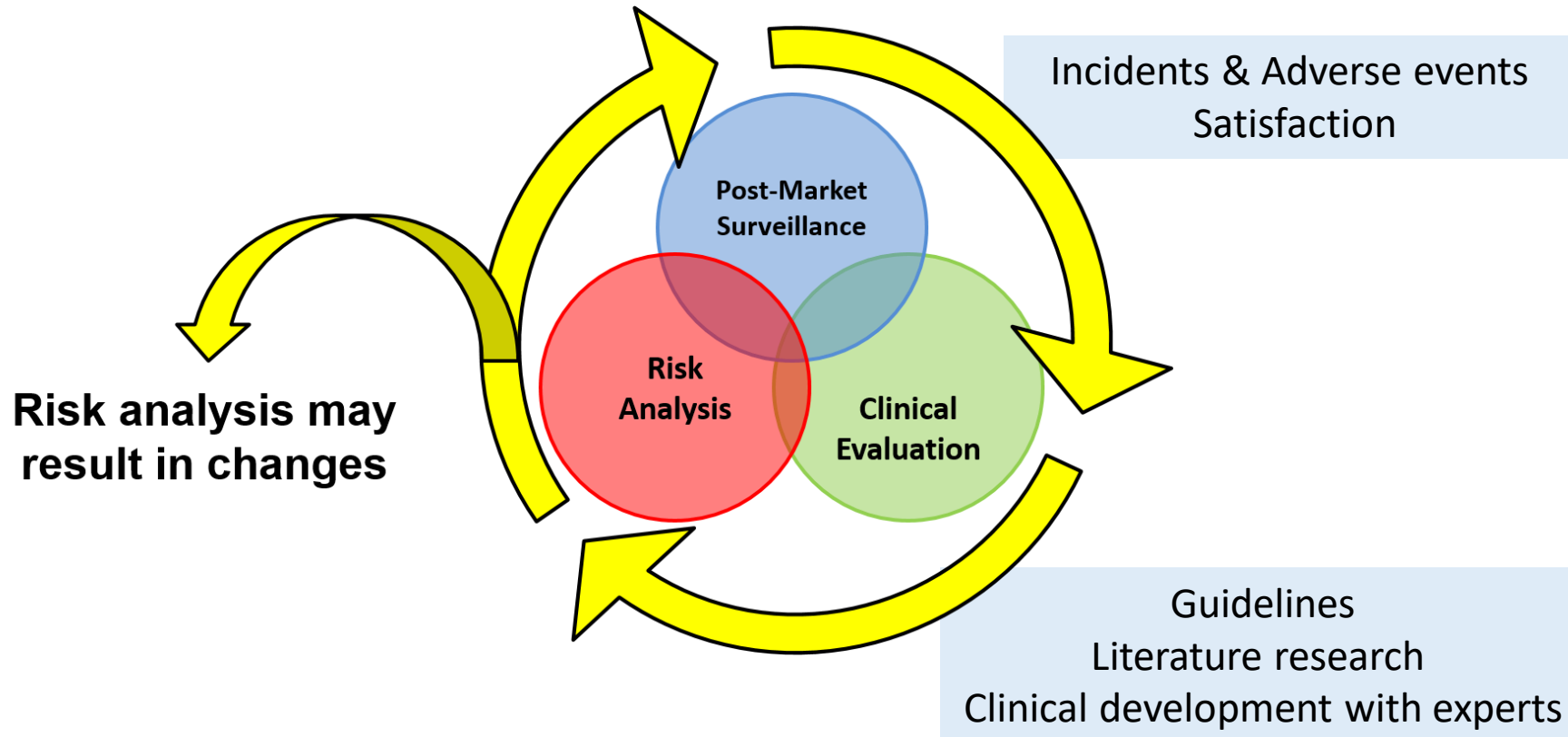
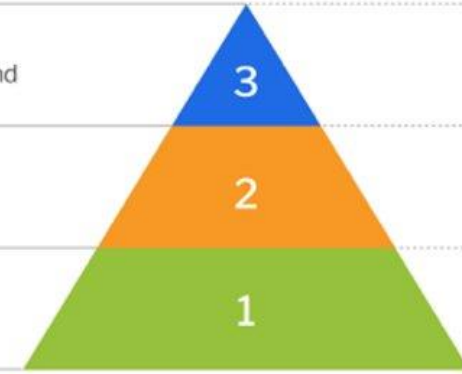
MoveUP as a medical device

E.g.: Artificial cardiac pacemaker

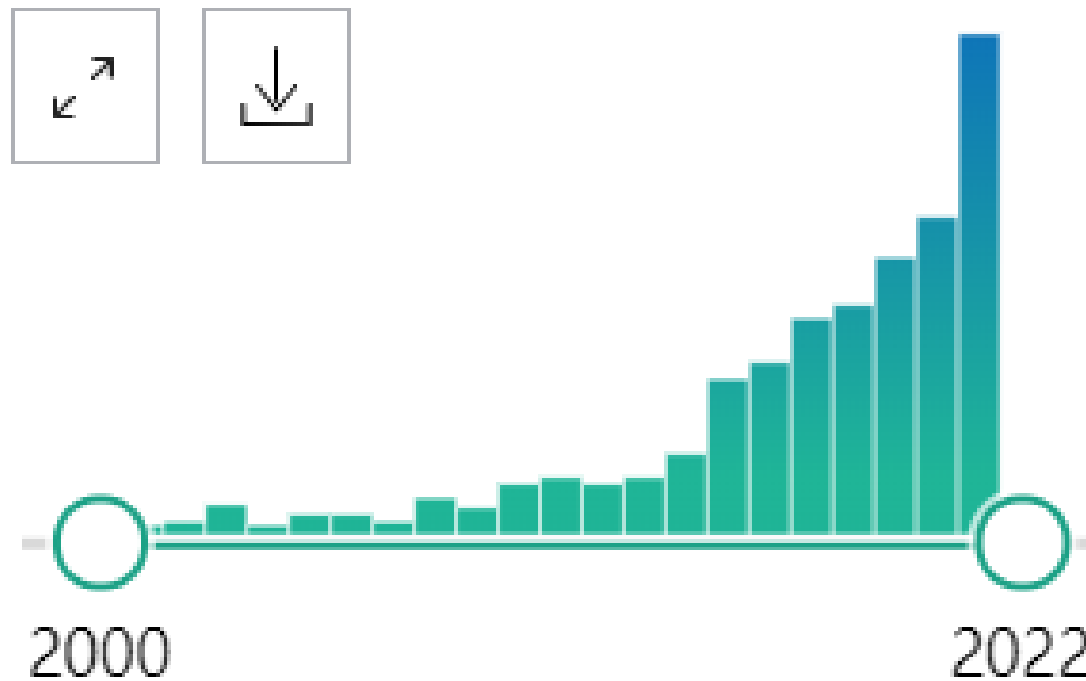
I show social-economic evidence and get reimbursed by RIZIV

I am safely connected

I am a CE certified medical device



Is there research on telerehabilitation ?



446

publications last year

"telerehabilitation" on Abstract/title on Pubmed

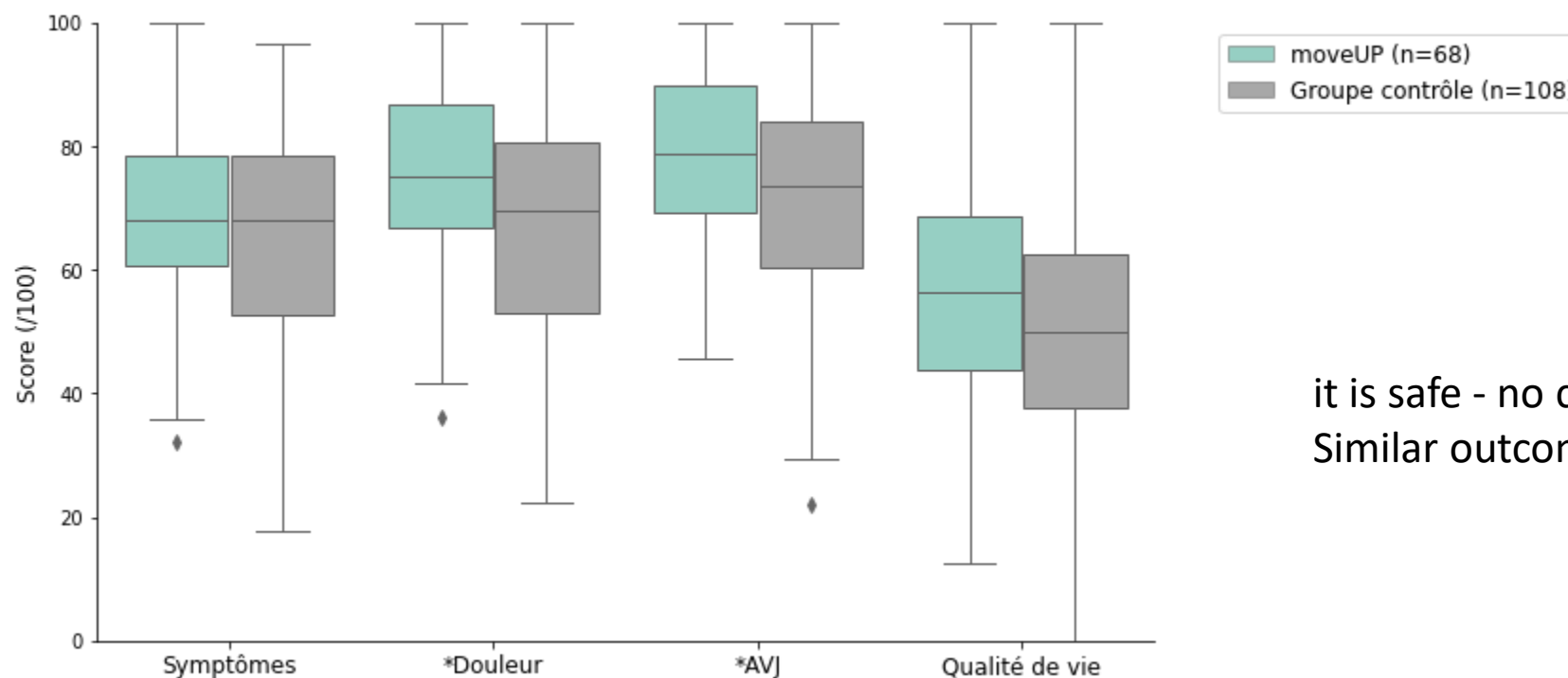
Is it safe ?

moveUP

Efficacité et sécurité d'une télééducation après la mise en place d'une prothèse de genou ou de hanche : l'étude MORE.

2017-2018

Comparaison du score KOOS du groupe moveUP et du groupe contrôle à 3 mois postopératoire



it is safe - no complications
Similar outcomes

And in Belgium ?



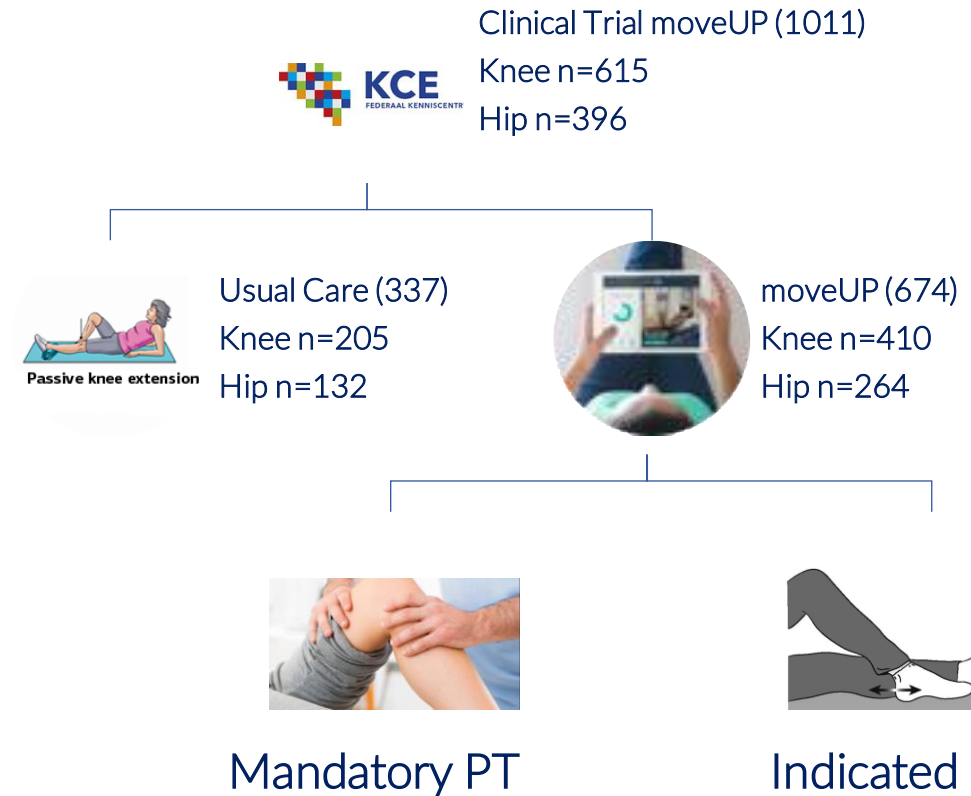
RCT running with 1000 patients !

15 hospitals

Primary Endpoints KOOS JR , HOOS JR
Secondary Quality of Life
Health Economics

You can join here :

<https://support.orthopedics.moveup.care/knowledge-base/preferred-physiotherapy-centres/>



And internationally?

11 studies, 1020 participants

Face-to-face rehabilitation vs internet-based TR

No significant different in outcomes of

Pain

ROM in flexion and extension

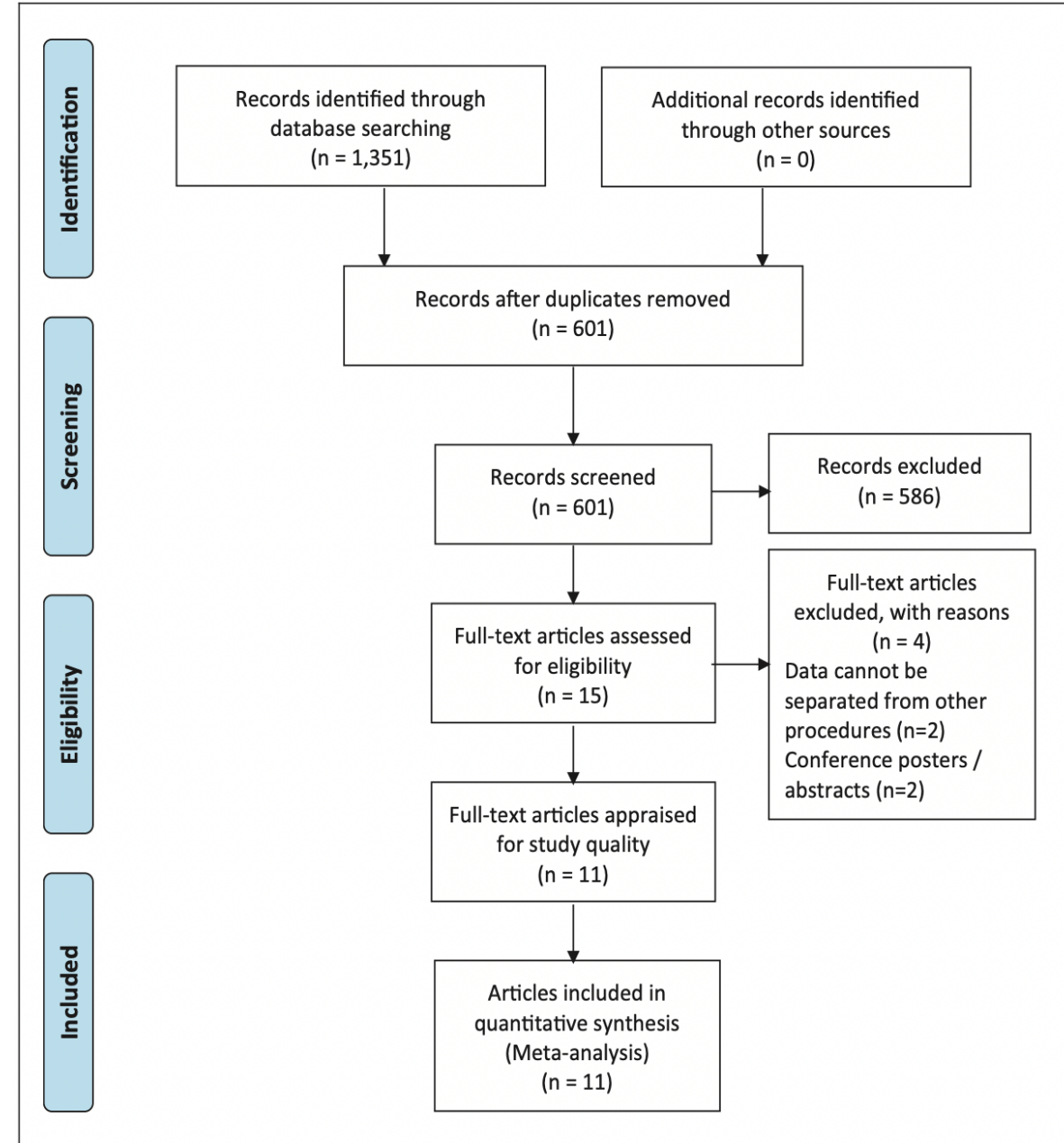
Patient-reported physical function

Health related quality of life

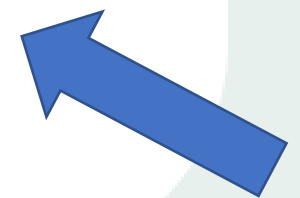
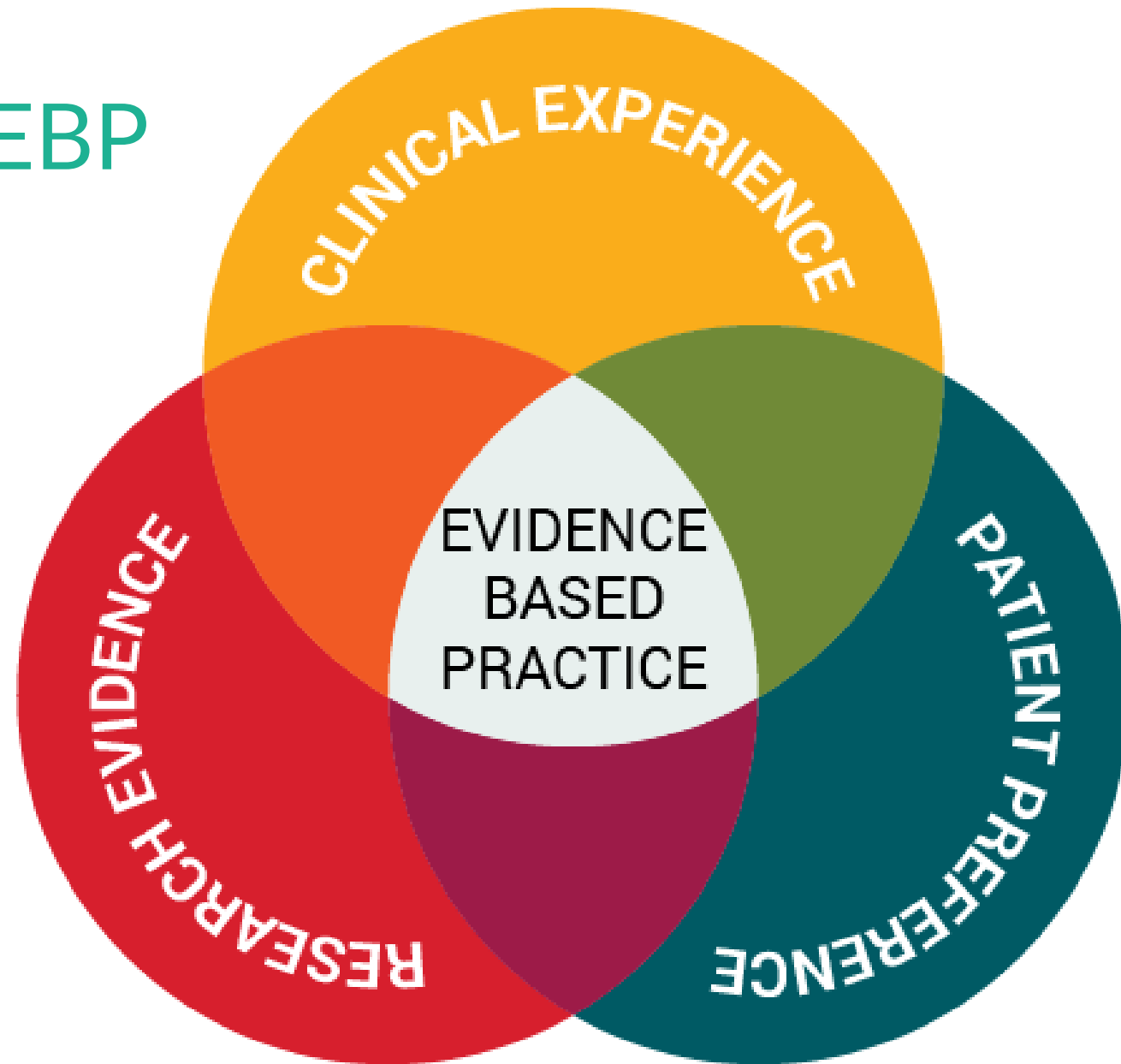
Satisfaction

Psychological well-being
rehabilitation

The effectiveness of internet-based telerehabilitation among patients after total joint arthroplasty: A systematic review and meta-analysis of randomised controlled trials



Pillars of EBP

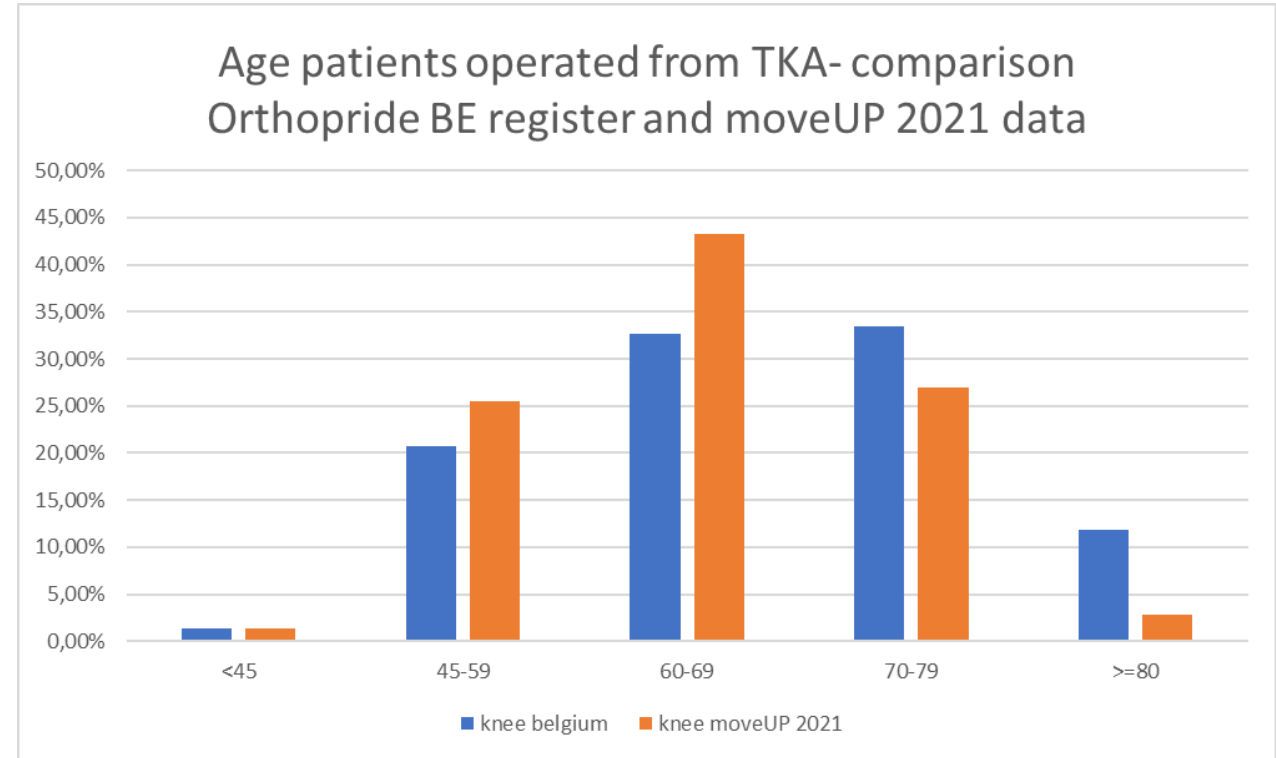
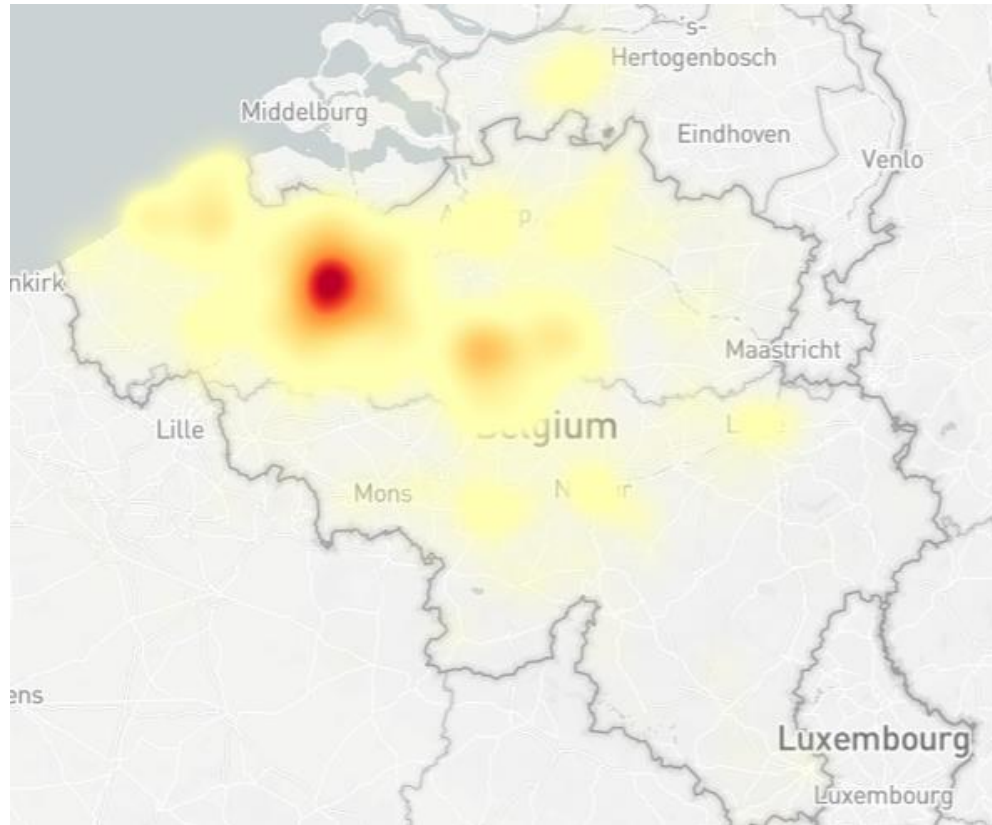


Marc, 67 years



- _ 9 years + knee pain, OA
 - _ TKA planned
 - _ Motivated for surgery & rehabilitation
 - _ Has a smartphone
 - _ Surgeon advised moveUP
- > Onboarding with Sanne

Who is the moveUP population?



also for the elderly!

Patient preference in telerehabilitation

ORIGINAL ARTICLE

Patients' needs regarding rehabilitation services delivered via mobile applications after arthroplasty: A qualitative study

- _ 20 patients
- _ Qualitative research: phone interviews
- _ 4 categories emerged: (1) assisting rehabilitation self-management, (2) facilitating peer support, (3) facilitating contact with healthcare professionals and (4) supporting emotional well-being.

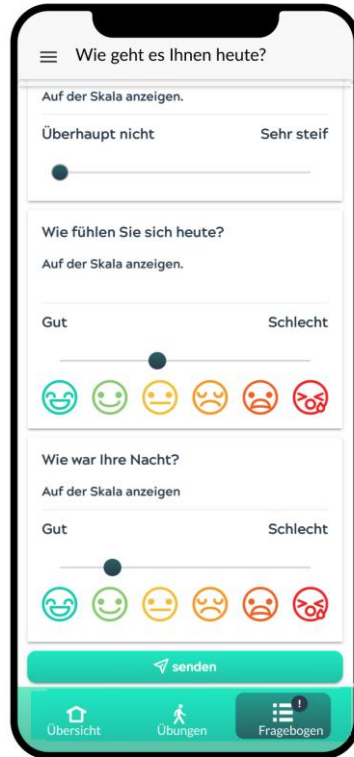
Randomized Controlled Trial > [Telemed J E Health](#). 2017 Feb;23(2):80-87.

doi: 10.1089/tmj.2016.0060. Epub 2016 Aug 16.

Patient Satisfaction with In-Home Telerehabilitation After Total Knee Arthroplasty: Results from a Randomized Controlled Trial

moveUP

What happens before surgery ?



- _ Wearable + theraband
- _ Baseline profile and expectations
- _ Information and education
- _ Daphné (PT) checks his status every day

Meta-Analysis > JBJS Rev. 2017 Dec;5(12):e2. doi: 10.2106/JBJS.RVW.17.00015.

The Value of Preoperative Exercise and Education for Patients Undergoing Total Hip and Knee Arthroplasty: A Systematic Review and Meta-Analysis



What happens at the hospital ?

- _ Baseline monitoring during hospital stay
- _ Start of personalised home-exercise scheme

move**UP**

11 June 2021

Early discharge with digital follow-up after total hip or knee arthroplasty during Covid-19: a retrospective cohort study



move**UP**

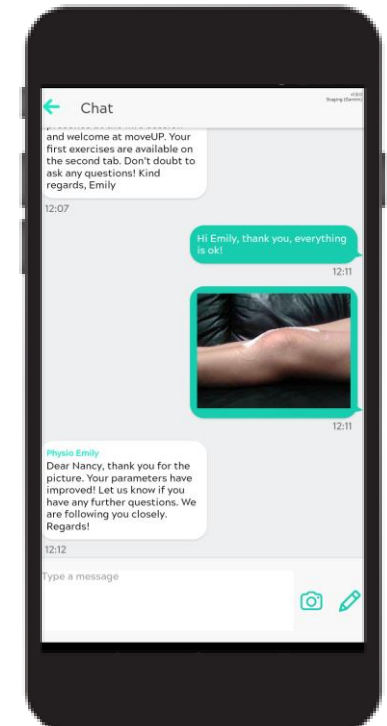
How is the acute phase managed ?

- _ Communication through a secured messaging system
- _ 2nd line doctor available if needed
- _ Weekly videos
 - _ Frequent assessment is recommended by guidelines



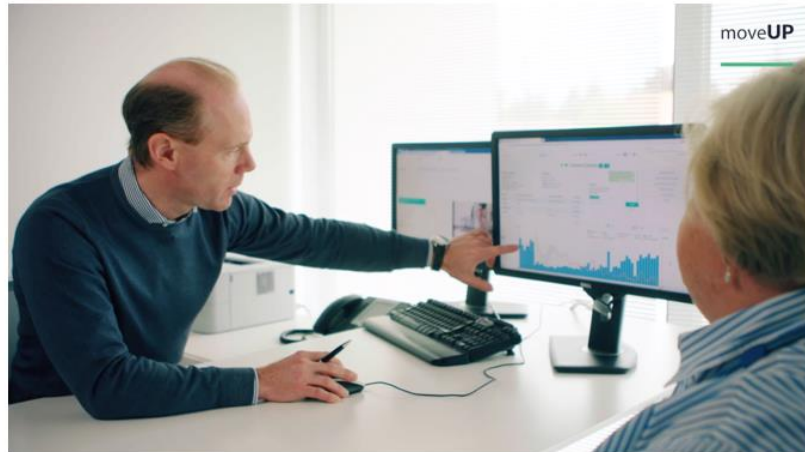
RESEARCH ARTICLE

Reference chart for knee flexion following total knee arthroplasty: a novel tool for monitoring postoperative recovery




How does a surgeon benefit from moveUP?

Improved communication with the patient



Bone & Joint Research, Vol. 4, No. 10 | Knee

 Open Access

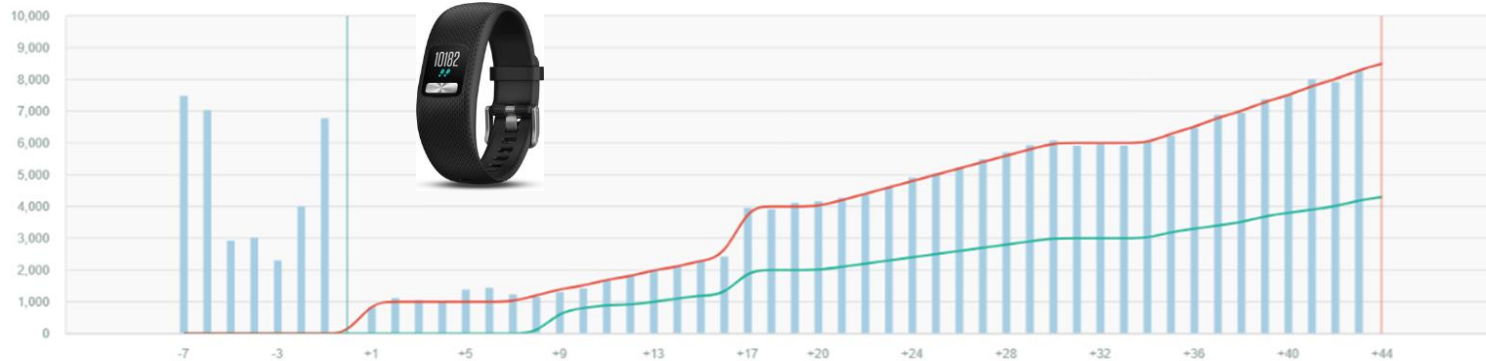
Patients' decision making in total knee arthroplasty

a systematic review of qualitative research



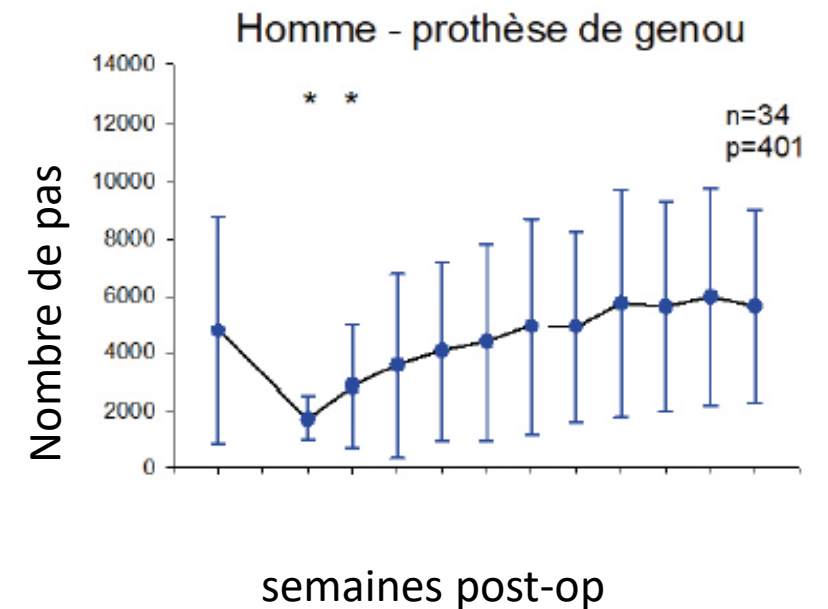
How active can Mark be?

- _ Over- or underloading
- _ Comparison with other similar profiles
- _ Minimum and Maximum steps per day



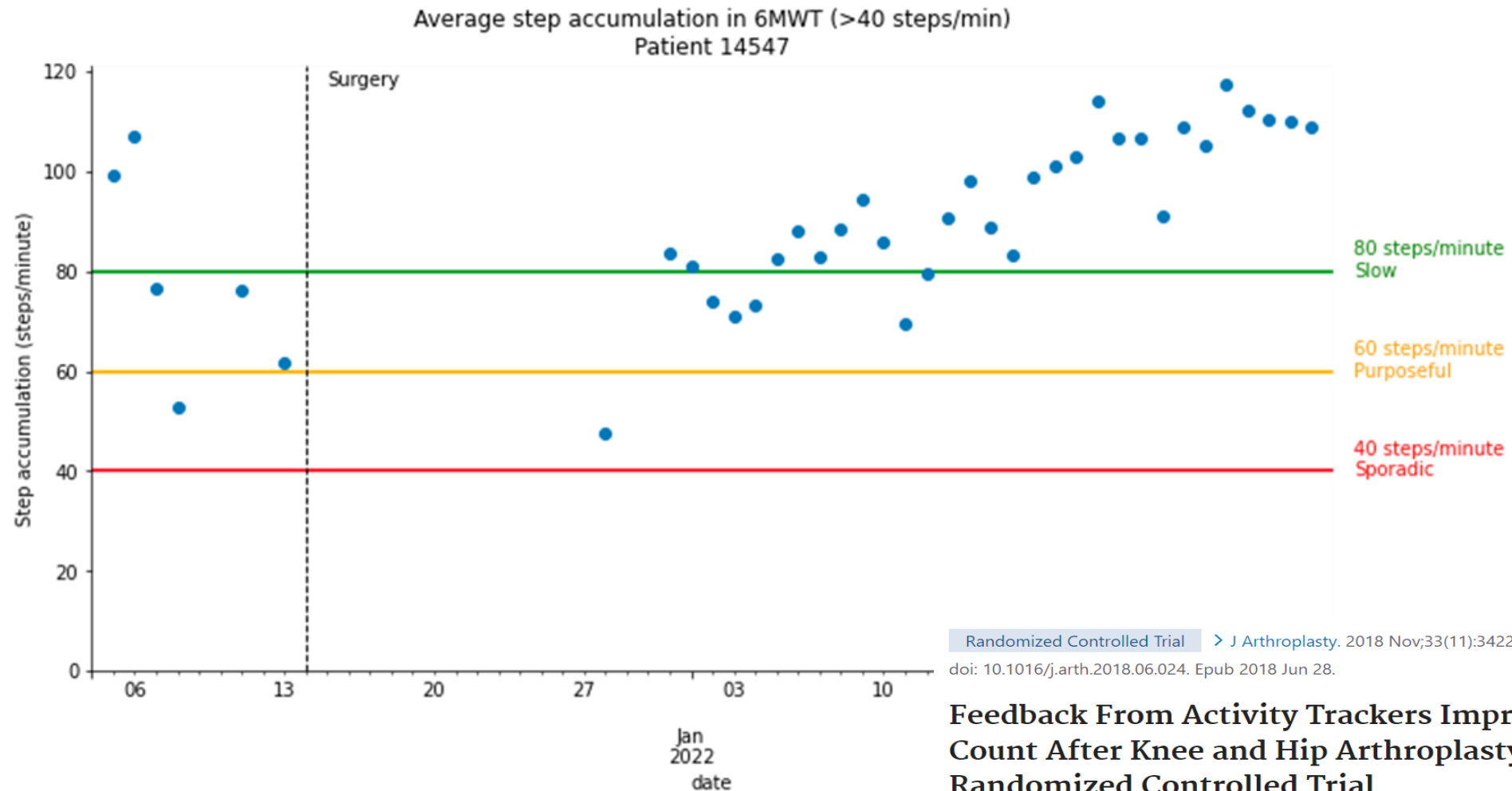
ÉTUDE DE COHORTE LORS D'UN TRAITEMENT DE KINÉSITHÉRAPIE PAR TÉLÉ-RÉADAPTATION

QUELLE EST LA RÉCUPÉRATION DU NIVEAU D'ACTIVITÉ PHYSIQUE APRÈS LA POSE D'UNE PROTHÈSE DE HANCHE OU DE GENOU?



How active can Mark be?

Unsupervised 6 minute walking test



Feedback From Activity Trackers Improves Daily Step Count After Knee and Hip Arthroplasty: A Randomized Controlled Trial

How else does moveUP want to empower recovery ?

- _ Improved management of movement quality
- _ In the future, we should have
 - _ Better gait analysis
 - _ Better management of patient profiling



RESEARCH ARTICLE

System for automatic gait analysis based on a single RGB-D camera



When does a patient stop ?

- _ Are patient and HCP expectations met?
- _ Referral to face-to-face PT if needed
- _ PROMS collection at 3M, 6M, 1Y, 2Y (according to guidelines)

--> Part of reference data: How is my actually patient doing?



moveUP

Thanks!

Addendum

- Q&A
 - Peripheral PT network
 - No subscription - part of the convention
 - Telerehab in complement or replacement

Articles

- Expanding Role of Technology in Rehabilitation After Lower-Extremity Joint Replacement: A Systematic Review.,McKeon JF, Alvarez PM, Vajapey AS, Sarac N, Spitzer AI, Vajapey SP., JBJS Rev. 2021 Sep 13;9(9). doi: 10.2106/JBJS.RVW.21.00016; PMID: 34516463
- [Feedback From Activity Trackers Improves Daily Step Count After Knee and Hip Arthroplasty: A Randomized Controlled Trial.](#), Van der Walt N, Salmon LJ, Gooden B, Lyons MC, O'Sullivan M, Martina K, Pinczewski LA, Roe JP., J Arthroplasty. 2018 Nov;33(11):3422-3428. doi: 10.1016/j.arth.2018.06.024. Epub 2018 Jun 28, PMID: 30017217 Clinical Trial.
- [The effectiveness of telerehabilitation after hip or knee arthroplasty: a narrative review](#), Ferrara PE, Codazza S, Ferriero G, Ricciardi D, Foti C, Maccauro G, Ronconi G., J Biol Regul Homeost Agents. 2020 Sep-Oct;34(5 Suppl. 1):75-79. IORS Special Issue on Orthopedics, PMID: 33739009 Review.
- [Predicting physical activity recovery after hip and knee arthroplasty? A longitudinal cohort study.](#) Lebleu J, Poilvache H, Mahaudens P, De Ridder R, Detrembleur C., Braz J Phys Ther. 2021 Jan-Feb;25(1):30-39. doi: 10.1016/j.bjpt.2019.12.002. Epub 2019 Dec 18., PMID: 31874729
- [The effectiveness of internet-based telerehabilitation among patients after total joint arthroplasty: A systematic review and meta-analysis of randomised controlled trials.](#) ,Wang Q, Lee RL, Hunter S, Chan SW., J Telemed Telecare. 2021 Jan 17:1357633X20980291. doi: 10.1177/1357633X20980291. Online ahead of print., PMID: 33459120

Articles

- [Patients' needs regarding rehabilitation services delivered via mobile applications after arthroplasty: A qualitative study.](#) Wang Q, Hunter S, Lee RL, Wang X, Chan SW, J. Clin Nurs. 2021 Dec 2. doi: 10.1111/jocn.16152. Online ahead of print., PMID: 34859523
- [The effectiveness of internet-based telerehabilitation among patients after total joint arthroplasty: An integrative review.](#) Wang Q, Lee RLT, Hunter S, Chan SW., Int J Nurs Stud. 2021 Mar;115:103845. doi: 10.1016/j.ijnurstu.2020.103845. Epub 2020 Dec 6, PMID: 33360248 Review.
- [The effects and safety of telerehabilitation in patients with lower-limb joint replacement: A systematic review and narrative synthesis.](#) Jansson MM, Rantala A, Miettunen J, Puhto AP, Pikkarainen M, J Telemed Telecare. 2020 Apr 21:1357633X20917868. doi: 10.1177/1357633X20917868. Online ahead of print.
- [Evidence based rehabilitation after hip arthroplasty.](#) Colibazzi V, Coladonato A, Zanazzo M, Romanini E., Hip Int. 2020 Dec;30(2_suppl):20-29. doi: 10.1177/1120700020971314, PMID: 33267691
- [The Value of Preoperative Exercise and Education for Patients Undergoing Total Hip and Knee Arthroplasty: A Systematic Review and Meta-Analysis.](#) Moyer R, Ikert K, Long K, Marsh J., JBJS Rev. 2017 Dec;5(12):e2. doi: 10.2106/JBJS.RVW.17.00015, PMID: 29232265
- [Patient Satisfaction with In-Home Telerehabilitation After Total Knee Arthroplasty: Results from a Randomized Controlled Trial.](#) Moffet H, Tousignant M, Nadeau S, Mérette C, Boissy P, Corriveau H, Marquis F, Cabana F, Belzile ÉL, Ranger P, Dimentberg R., Telemed J E Health. 2017 Feb;23(2):80-87. doi: 10.1089/tmj.2016.0060. Epub 2016 Aug 16, PMID: 27529575 Clinical Trial.