

Ergonomic analysis in chronic low back pain workers

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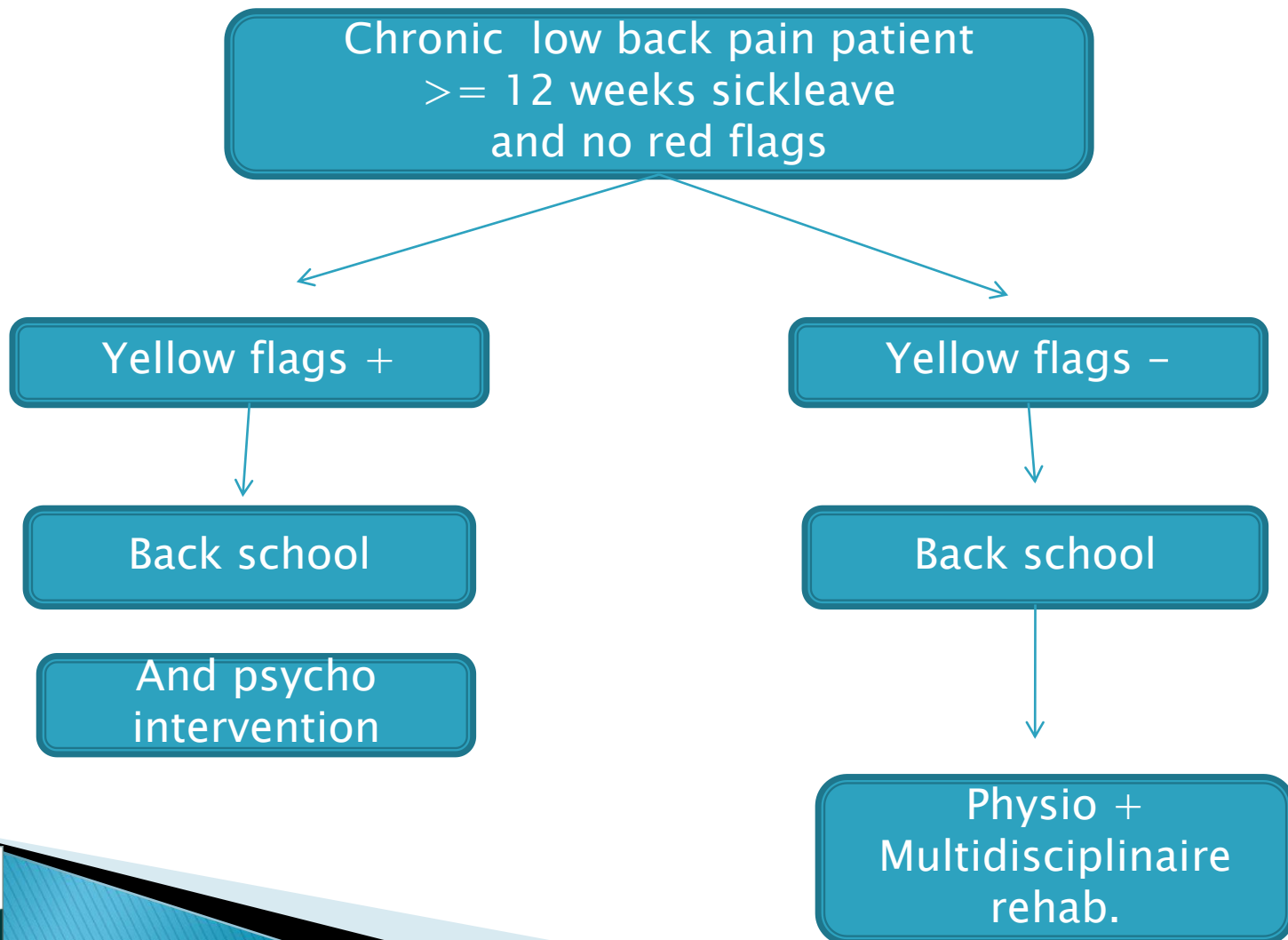
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Ergonomics in the clinical pathway

Which intervention and where ?



Clinical pathway

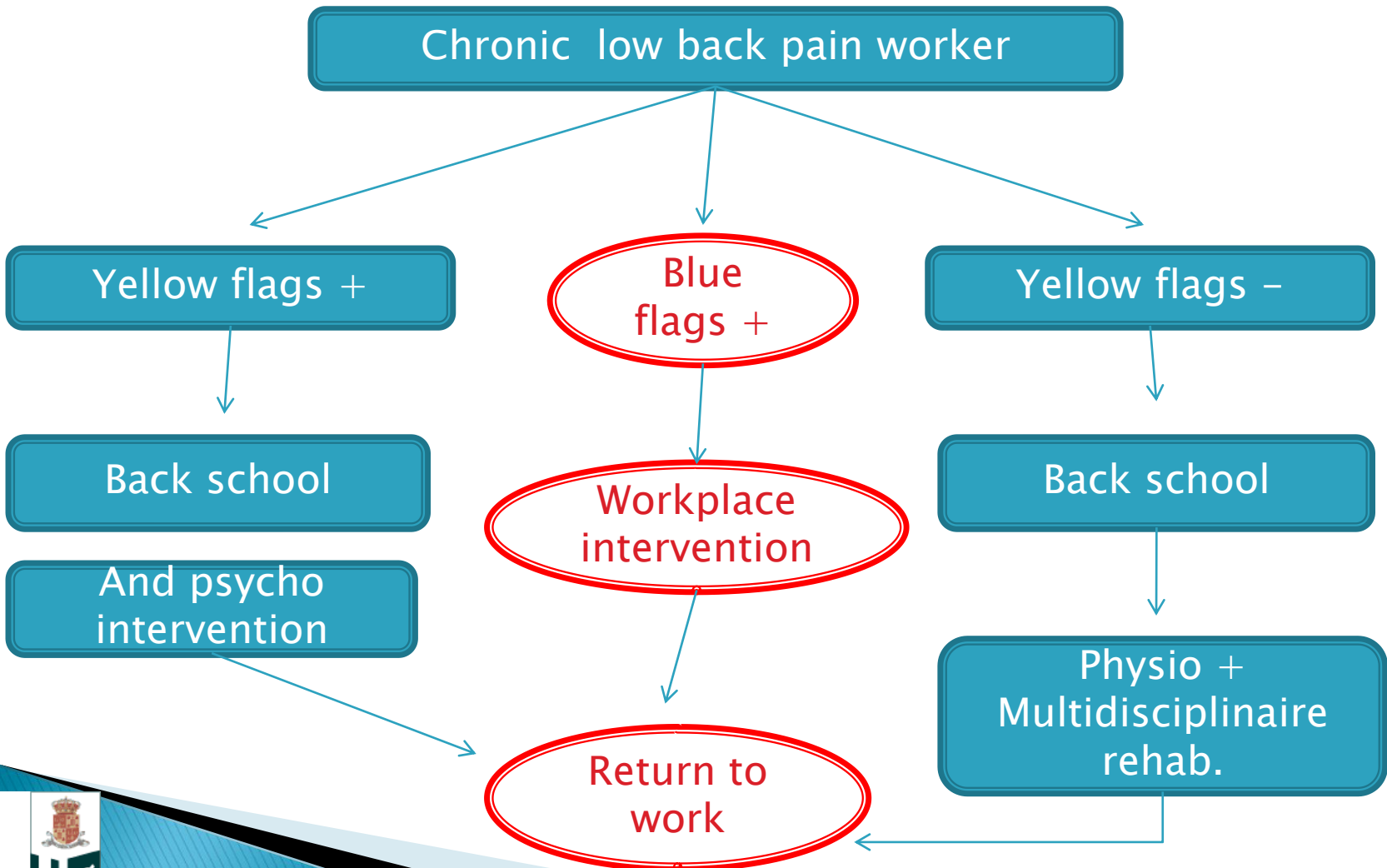
Which intervention and where ?

- ▶ Which is the underlying model of this therapeutic pathway ?
 - Functional restoration ?
 - Muscle and aerobic reconditioning ?
 - Wrong beliefs modifications ?
 - Pain relief ?

- ▶ What is perhaps missing ?
 - Identification of « blue flags »
 - Measuring therapeutic success also through reintegration in work activities

Ergonomics in the clinical pathway

Which intervention and where ?



Belgian published guidelines 2008

(25 p document +
technical annex 19p)

Prise en charge
de la lombalgie
en médecine
du travail

Recommandations de bonnes pratiques

Behandeling van lumbago
in arbeidsgeneeskunde

Aanbevelingen van goede praktijk

<http://www.werk.belgie.be/publicationDefault.aspx?id=22336>

September 2008

Algemene Directie Humanisering van de Arbeid

“Blue flags” increasing the risk of disability due to CLBP

- Dissatisfaction at work
- High demands but low rewards situations
- Conflict at work : within the team or with the supervisor
- Exposure to mechanical risks factors at the workplace and unavailability of light duties (Fransen et al 2002)
- Compensation cases after occupational injury (but controversial association)
-

Effectiveness of RTW programs ?

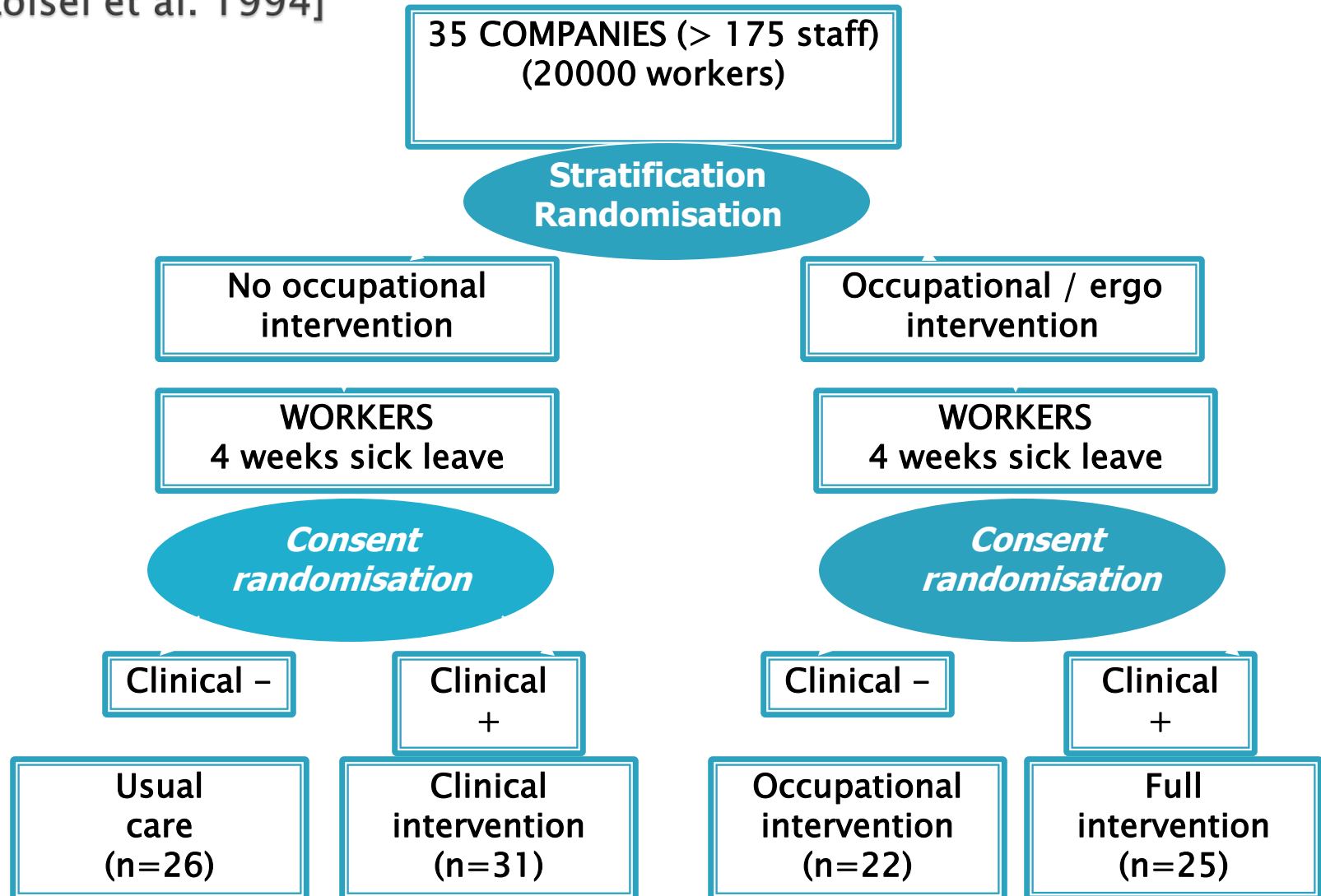
Interventions for workers on sick leave for low back pain

- ▶ Strong evidence that multidisciplinary treatment programs including intensive physical reconditioning improve pain and function and can reduce the numbers of lost days
- ▶ Strong evidence that work disability duration can be significantly reduced by work accommodation offers, a contact between health care provider and the workplace, a contact with the worker by the workplace provider or by ergonomic worksite visits

(see KCE report 48, chronic LBP, 2006)

The Sherbrooke model, Quebec

[Loisel et al. 1994]



Sherbrooke model : return to work results [Loisel et al, Spine 1997;22: 2911-18]

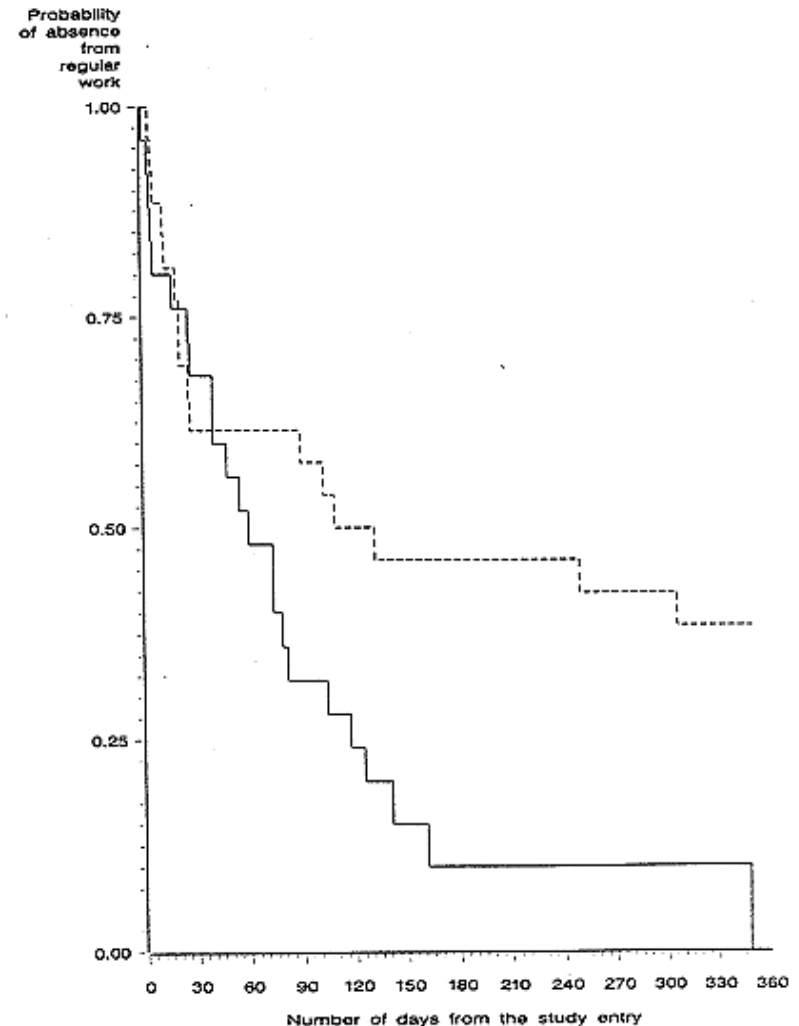
Intervention

..... usual care

_____ full

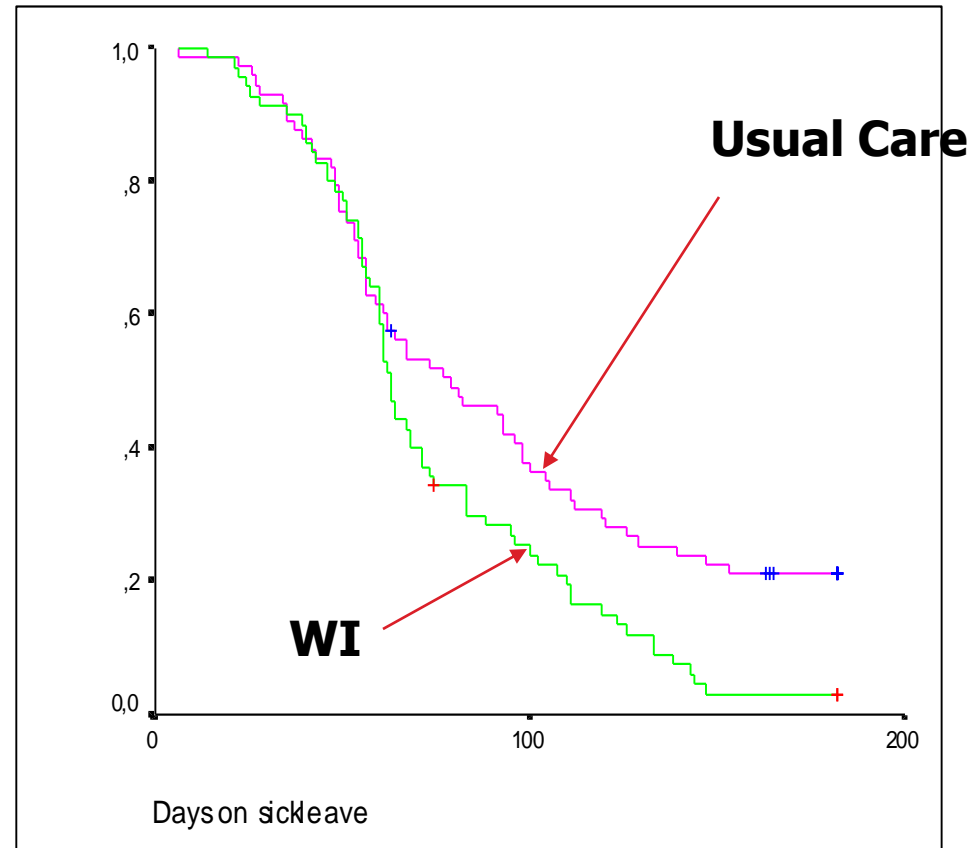
Signification :

$p = 0.022$



Dutch replication of the Sherbrooke model : workplace intervention impact (Steenstra, Anema 2004)

- ▶ Outcome: N calendar days until lasting (>28 d.) return to own work
- ▶ WI Usual Care
64 days 79 days
(median; logrank $p=.011$)
- ▶ Cox regression analysis; Intention to treat/per protocol
- ▶ Workplace intervention effective after 60 days of sick leave and onwards (hazard ratio = 2.5 [CI 1.5 to 4.1]; $p=0.0003$).



(Anema et al Spine 2007;32: 291-98)

Interventions for workers on sick leave due to LBP – effectiveness ?

- ▶ There is moderate–quality evidence to support the *use of workplace intervention* to reduce sickness absence among workers with musculoskeletal disorders when compared to usual care
- ▶ Workplace intervention are not effective to improve health outcomes (pain, functional status...) among workers with musculoskeletal disorders

(van Oostrom et al, Cochrane Review 2009)

Interventions for workers on sick leave due to LBP – effectiveness ?

- ▶ The evidence on the effectiveness of *intense physical conditioning* programs versus usual care in workers with subacute back pain is conflicting.
- ▶ Further subgroup analysis shows that if the intervention is executed at the workplace or include a workplace visit, it significantly reduces the duration of sickness absence at the intermediate, long and very long-term.

(Schaafsma et al, Cochrane Review 2010)

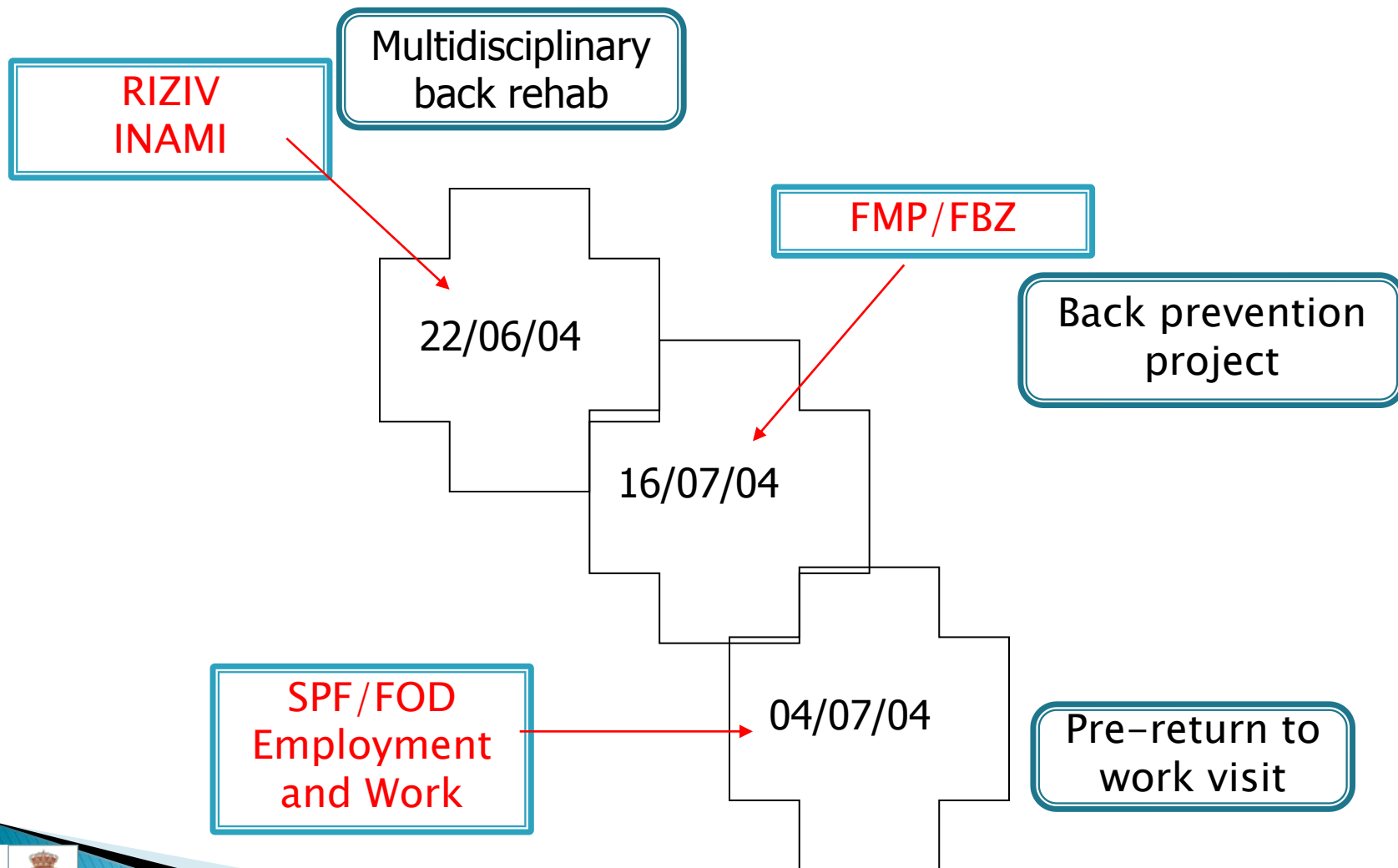
Prevention of disability due to chronic LBP: why networking is crucial ?

- ▶ Scientific evidence and international practice guidelines strongly advocate a combination of
- ▶ Multidisciplinary treatment programs of a medical nature (resources to be found in the health care sector)

AND

- ▶ Workplace or ergonomics intervention (resources available in OH prevention services and enterprises)

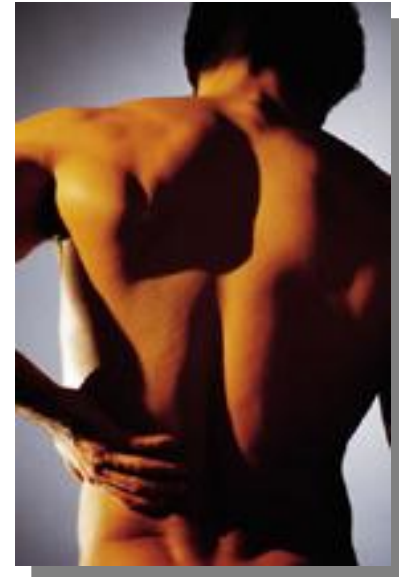
The Belgian back prevention project : putting together three pieces of a regulatory puzzle



The FMP back prevention program

– target population

- ▶ Workers exposed to manual handling of loads or to whole-body vibrations
- ▶ AND being off work due to non-specific low back pain
 - Since minimum 4 weeks and maximum 3 months
- ▶ AND without a surgical indication or other medical condition precluding the participation
- ▶ AND willing to participate on a voluntary basis



The FOD back prevention program – a return to work program

Medical axis

Incentives to the worker for entering the INAMI–RIZIV back rehabilitation program

Workplace axis

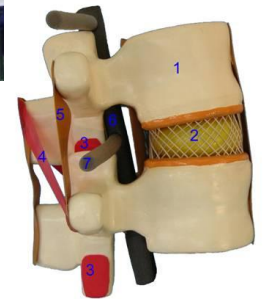
Ergonomic analysis of the worker tasks (350 € incentive for the employer)

Early return to work
Clinical and psychological improvement

The INAMI health care multidisciplinary back rehabilitation program



36 sessions (max)
of 2 hr duration



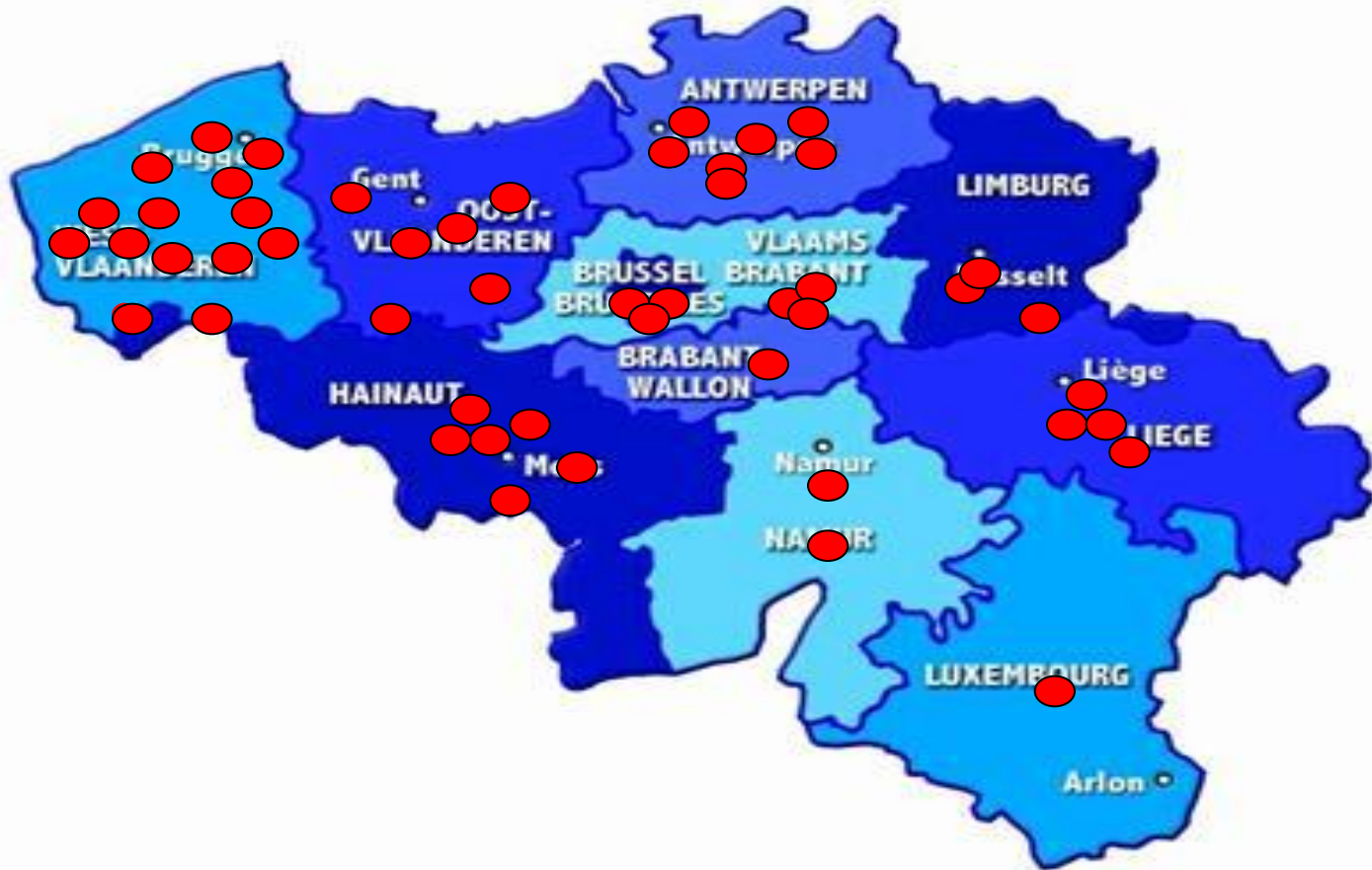
+

Pain emotional
components by a
psychologist

Ergonomics module by a
trained team member

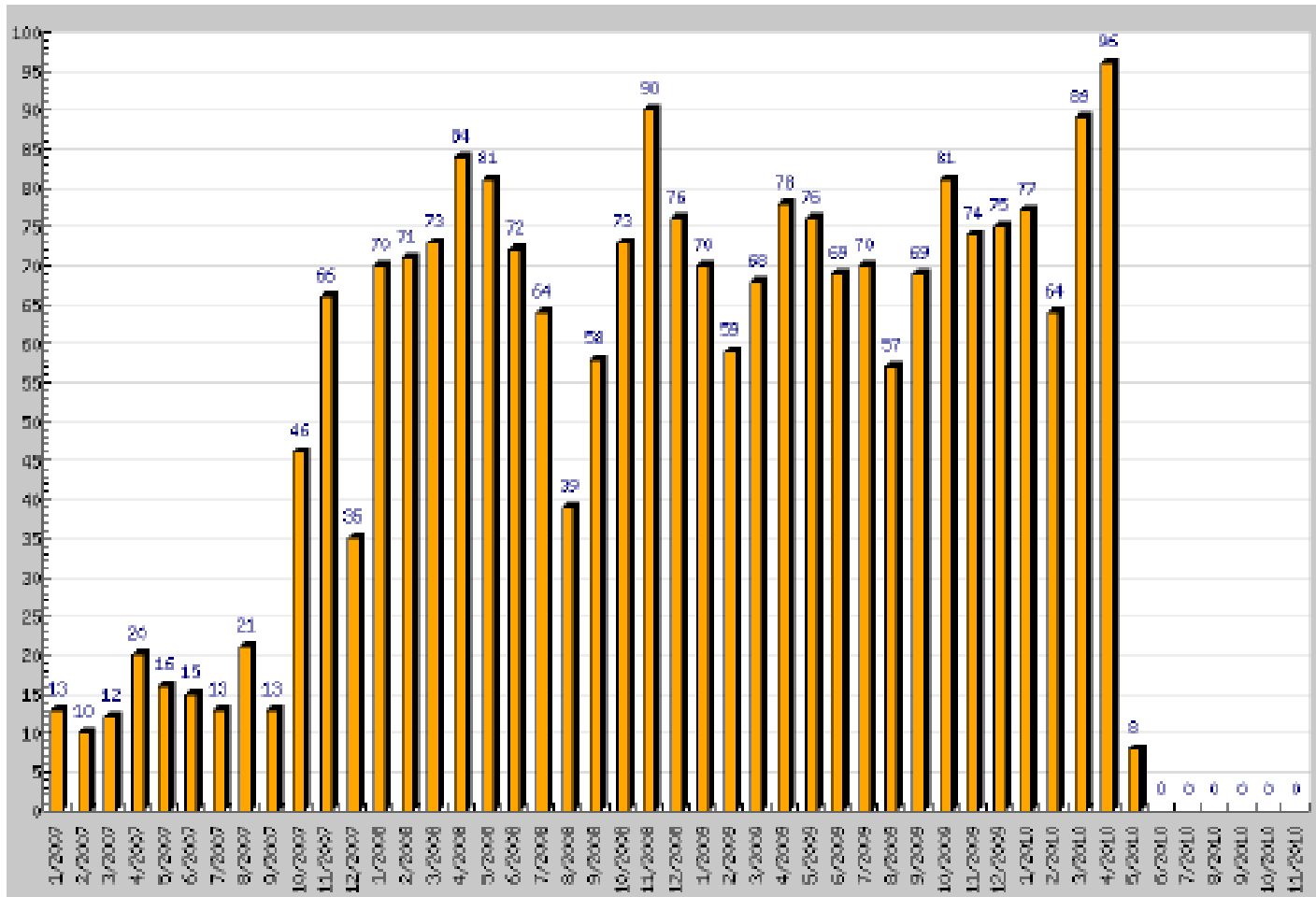


Medical axis : > 50 rehabilitation centres under contract with FMP-FBZ



Are providing the back program

Monthly applications to the FOD back pain prevention program



From January 2007 to April 2010

The FOD back prevention program – a RTW program

Medical axis

Incentives to the worker for entering the health care back rehabilitation program

Workplace axis

Ergonomic analysis of the worker tasks (350 € incentive for the employer)

**Networking
between
care and prevention
physicians**

Workplace intervention (WI)

Content ? Definition ?

- ▶ Early healthcare provider communication with the workplace (*see Kosny et al 2006*)
- ▶ Workplace visit : who ? With/without the worker ? Meeting the supervisor? Aim ?
- ▶ Interview with the occup. Health physician (OP) during the sick leave period
- ▶ Participatory ergonomic program (PEP) including task analysis, risk factors identification, improvements proposals, prioritization of solutions, ...

(see Loisel 2001, Anema 2003)



Ergonomic analysis

What should we advise ? Flex your knees please ?

Or should we ask : why this piece of equipment is on the ground ? And not on a support at a proper height ? How to best locate the support ?

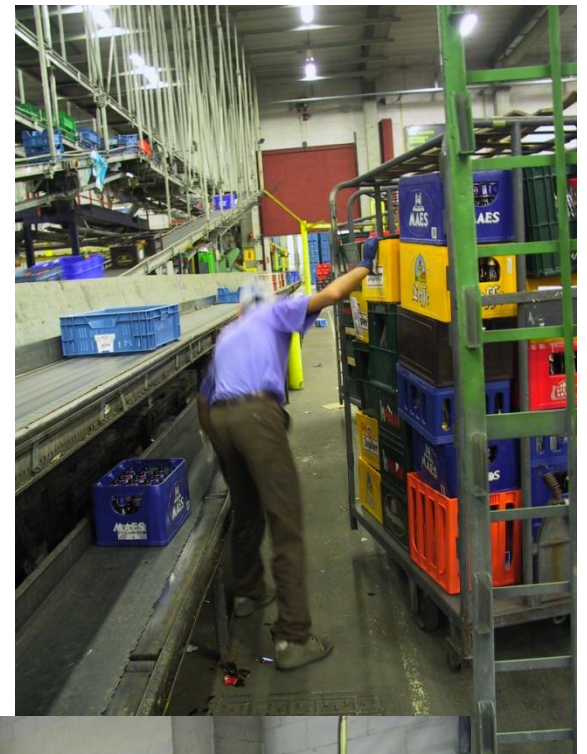


Ergonomic analysis

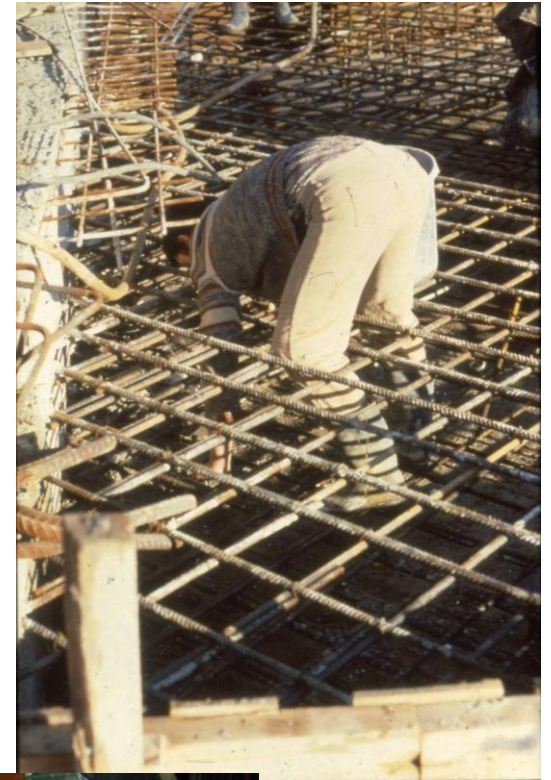
No postural advice available !

Redesigning the equipment is the only way !

Ergonomic analysis



Ergonomic analysis



Ergonomic analysis



In a call center



Workplace ergonomic analysis

Intended outputs

- ▶ Advising the worker on postural adaptations / handling techniques specific to his own tasks
- ▶ Identifying main biomechanical risks for equipment redesign
 - Simple, low-cost solutions ?
 - Major redesign needed ?
- ▶ Initiating a process of change
 - Through the management
 - Through the workers themselves (participatory ergonomics program – PEP)

Workplace intervention (WI)

Implementation of solutions

- ▶ (PEP) solutions : 40 to 50% only are implemented; intervention cost : 5 to 13h ergonomist involvement per workplace
- ▶ Work design and organisation modifications (hours adaptation, job design, training, human support) can be temporary and are easier and quicker to implement
- ▶ Workplace and equipment design changes imply more often time delays and are generally of permanent nature

(see Loisel 2001, Anema 2003)

Workplace intervention (WI)

How does it work ?

- ▶ The provision of suitable duties facilitates return-to-work, reduces days lost due to injury, and is cost-effective
(Krause et al 1998; Loisel et al 2005)
- ▶ Stimulating effect of solutions on work resumption? Yes, for 66% of workers
(Anema et al 2003)
- ▶ But many return to work **before the implementation of solutions !!**
(Loisel et al 2001)

Workplace intervention (WI)

How does it work ?

- ▶ Why many return to work before the implementation of solutions ??
- ▶ Possible explanations :
 - ▶ social exchange theory
 - ▶ organisational justice in the work setting
(Ambrose 2002 ; Wayne et al 1997)
- ▶ A workplace visit, or an ergonomic analysis, if performed with both the worker AND the supervisor may be viewed as a tacit acknowledgement by the enterprise of the worker suffering and the need to help him/her returning to work

Conclusions

- ▶ The workplace components of “return to work” programs (work accommodation offers, contact between health care provider and the workplace, contact by the supervisor with the worker, ergonomic worksite analysis) have been shown to be effective in increasing RTW rates and in reducing disability among LBP workers
- ▶ Their effectiveness can be ascribed to both
 - Technical improvements at the workplace
 - Psychosocial changes : thrust, understanding, social support, perception of organizational justice...

Conclusions

- ▶ To promote the effectiveness of a return to work approach, two conditions must be met :
 - A true participatory approach involving the worker at each stage of the process
 - An effective networking between physicians belonging to the curative sector and those active in preventive services
- ▶ But this 2nd condition would need
 - Time
 - Alterations of mutual misperceptions
 - Perception of benefits arising from this collaboration in the daily practice
 - Incentives from the health system

Thank you for your attention !

