



Institute
and Faculty
of Actuaries

Pricing IP with early intervention

Graham Lee
Samantha Spicer



20 May 2013

Pricing IP with early intervention

1. InteractPlus – what is it?
2. What are the costs of IP?
3. How can early intervention impact the costs?
4. How did we adjust the standard IP assumptions?
5. Is it worth it?



20 May 2013

2



Institute
and Faculty
of Actuaries

InteractPlus – what is it?

20 May 2013

erlise
 Sponsorship
 Thought leadership
 Progress
 Community
 Sessional Meetings
 Education
 Working parties
 Volunteering
 Research
 Shaping the future
 Networking
 Professional support
 Enterprise and risk
 Learned society
 Opportunity
 International profile
 Journals
 Support

InteractPlus – what is it?

What is InteractPlus?

- It's Group Income Protection, with a fully integrated absence reporting and management system

Fully integrated?

- Yes
- If clients want the InteractPlus product, they have to engage with our absence reporting process

Which means?

- Members call a number to report their absence to a call centre
- This is passed on to their line manager, and – if necessary – to the case managers at Ellipse



Institute
and Faculty
of Actuaries

20 May 2013

4

InteractPlus – what is it?

Why do you want that?

- Everyone has been saying for a long time that the key to managing Income Protection claims is to find out as soon as possible
- This model means that we will find out about the absence almost immediately, and can begin working with the employer and the employee to bring them back to work as soon as we can

And who would buy that?

- Companies who need absence management
- There are real benefits for smaller companies, who cannot afford or justify a full in house HR/absence process – but who equally cannot afford to have key staff members absent long term
- There are also attractions for companies with a widely dispersed workforce, or a significant proportion of employees working from home



20 May 2013

5

InteractPlus – what is it?

That's all well and good, but surely everyone can do that?

- We can certainly ask for absences to be notified early
- In fact, we can incentivise employers to do so
 - Premium discount for promptly notifying absences of more than 4 weeks
- So the benefit of the direct link to absence management is...?
- Some long term absences are obvious from day 1, we don't then need to wait for these to reach a threshold before being notified and intervening
- Other issues can be identified well before they turn into long term absence



20 May 2013

6

InteractPlus – what is it?

Obvious long term absences:

- These would tend to be long term or permanent physical impairments that need work by the employer to allow the member to return
- We would find out about these immediately and so:
 - Can begin assessments of the member and the workplace, and
 - Can recommend workplace enhancements, or changes to working practices

To allow the member to make a quick return to work
- Without the link to absence management we are either:
 - Relying on the employer to recognise the long term nature of the absence and report early; or
 - Only begin the work after 4 weeks or more of absence



20 May 2013

7

InteractPlus – what is it?

Absences that can be identified from absence patterns:

- Problems related to stress or alcohol/drug abuse will tend to manifest themselves in regular short-term absence well before they turn in to a long term absence
- And once they become a long term issue, they will be much more significant problems
- By having the link to absence management we can set triggers to identify such patterns
- This allows us to offer counselling and rehabilitation services to these members earlier



20 May 2013

8

InteractPlus – what is it?

Those are the key areas where this approach really helps, but there are benefits to all members:

- Regardless of the absence cause, the earlier you can intervene, the quicker people return to work
- Some absences have a natural course, and intervening after 4 weeks is still appropriate
- Others can be significantly reduced, or avoided altogether, by bringing appropriate professionals in at the earliest opportunity



20 May 2013

9

InteractPlus – what is it?

So what does it cost?

- Is it **really** cheaper to intervene early?
- Do the costs of providing the management service, and the interventions, exceed the savings involved in bringing members back to work?

And, more importantly, how would we estimate this before we write the business?



20 May 2013

10



Institute
and Faculty
of Actuaries


Where are the costs of IP?

20 May 2013

ertise
ponsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

Where are the costs of IP?

- Incidence rates
- Recovery rates
- Death rates



Institute
and Faculty
of Actuaries

20 May 2013

12

Where are the costs of IP?

Incidence rates

- The CMI WP23 gives a mix of cause of absence for different deferred periods:

	DP4	DP13	DP26	DP52
Infections & acute respiratory	4.0%	1.9%	1.8%	1.6%
Neoplasms	5.9%	12.2%	11.5%	7.8%
Mental Illness	11.3%	17.4%	26.5%	34.9%
Nervous system & sensory organs	3.5%	4.6%	7.5%	8.3%
Circulatory	10.7%	13.6%	15.7%	13.0%
Digestive (non-infectious)	7.3%	3.1%	1.6%	1.1%
Genito-urinary	3.3%	1.6%	1.1%	0.7%
Arthritis	4.6%	5.7%	6.0%	5.7%
Musculoskeletal	20.6%	16.8%	12.5%	13.1%
Injuries	20.7%	13.4%	6.4%	4.2%
All others	8.0%	9.8%	9.5%	9.6%



Institute
and Faculty
of Actuaries

20 May 2013

13

Where are the costs of IP?

And for InteractPlus:

- We'll be involved in the absence almost from day 1
- So we also need to be aware of what happens in the weeks/months before an IP claim starts
- So what is causing all the absences?



Institute
and Faculty
of Actuaries

20 May 2013

14

Where are the costs of IP?

Cause of short term absences:

- The CIPD Absence Management gives the top 5 causes of long and short term absence for a range of employers

Cause	Percentage citing as top 5 cause
Minor illness	99%
Stress	55%
Musculoskeletal injuries	53%
Back pain	44%
Recurring medical conditions	43%
Home/family responsibilities	37%
Mental ill-health	28%
Injuries/accidents not related to work	26%
Acute medical conditions	22%
Other absences not due to genuine ill-health	17%
Pregnancy-related absence (not maternity leave)	14%
Work-related injuries/accidents	5%
Drink- or drug-related condition	2%



20 May 2013

15

Where are the costs of IP?

Cause of short term absences:

- We then reverse engineer a mix of absence causes
- Effectively: "given the observed mix of top 5 causes, what is the most likely underlying mix?"

Cause	Mix
Minor illness	21.8%
Stress	13.3%
Musculoskeletal injuries	12.9%
Back pain	10.8%
Recurring medical conditions	10.6%
Home/family responsibilities	7.6%
Mental ill-health	5.6%
Injuries/accidents not related to work	5.2%
Acute medical conditions	4.3%
Other absences not due to genuine ill-health	3.2%
Pregnancy-related absence (not maternity leave)	2.5%
Work-related injuries/accidents	2.0%
Drink- or drug-related condition	0.2%

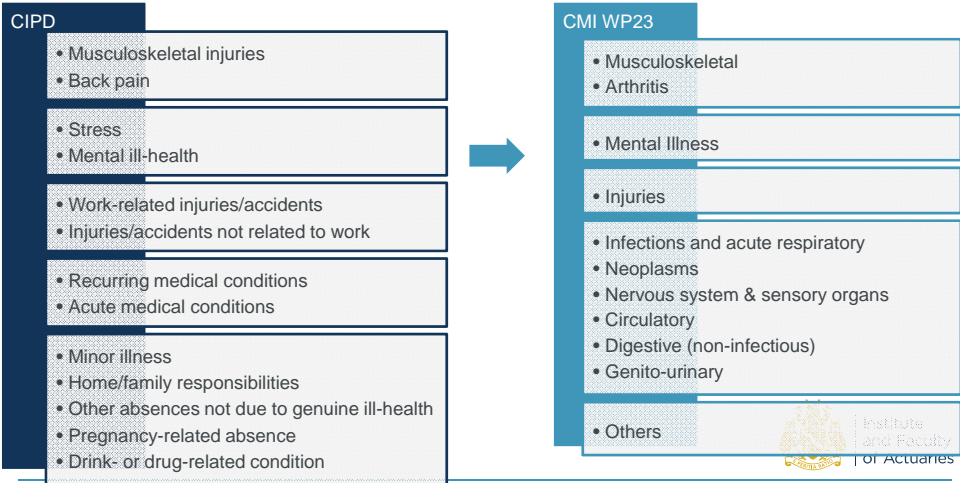


20 May 2013

16

Where are the costs of IP?

These will then blend in to the long term absences (IP inception rates):

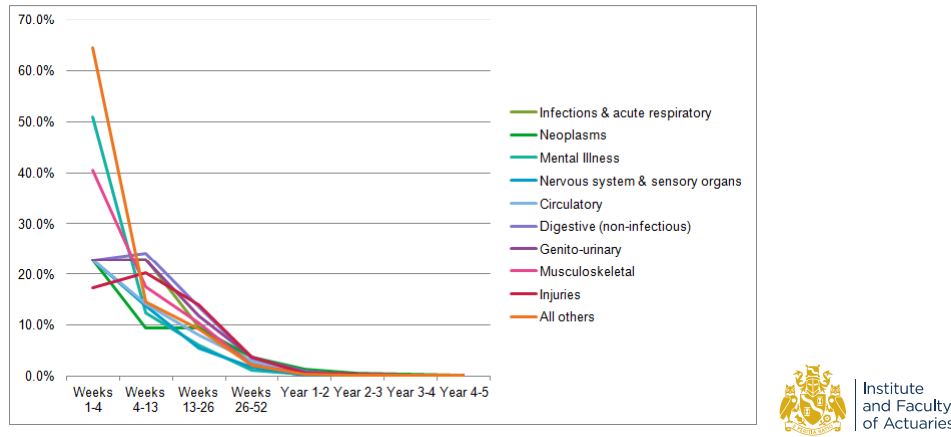


20 May 2013

17

Where are the costs of IP?

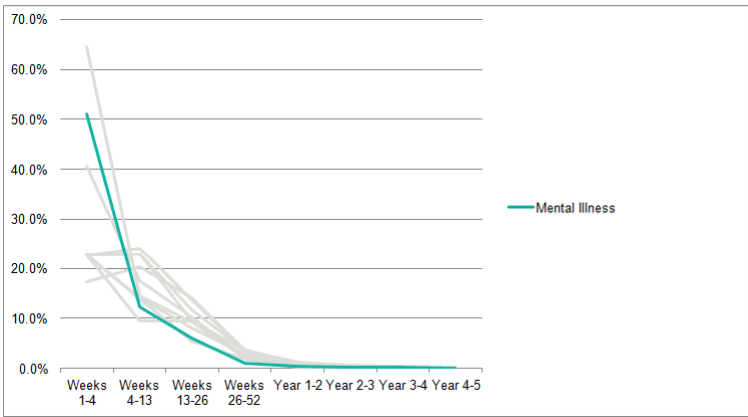
We then derive weekly recovery rates by absence cause, fitting the CIPD data to the mix of causes in the CMI inception rates:



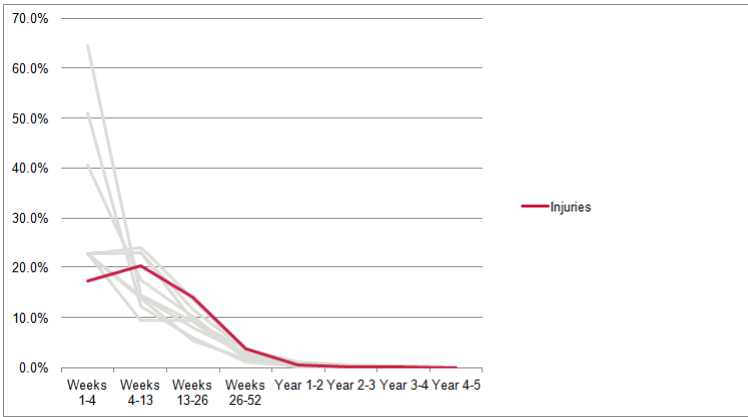
20 May 2013

18

Where are the costs of IP?



Where are the costs of IP?



Where are the costs of IP?

This gives us a framework for the early absences and recoveries for a normal group of lives:

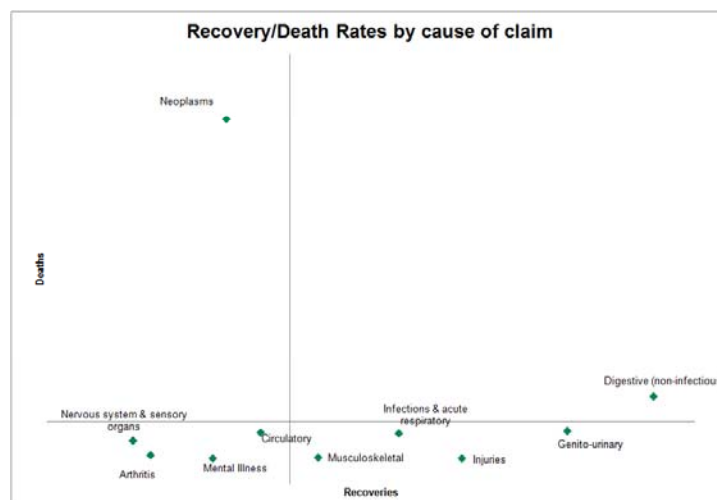
- The InteractPlus model is very focussed on the early absences
- Once a member has been absent for a few months the claims management is comparable to a normal Income Protection product
- In practice, the long term claims under IP will often not be due to the original absence cause anyway



20 May 2013

21

Where are the costs of IP?



Source: CMI WP23

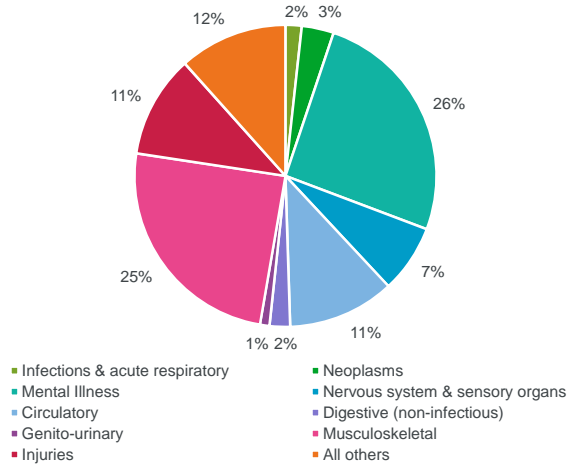


20 May 2013

22

Where are the costs of IP?

We can now identify the claim causes that are driving the cost of IP:



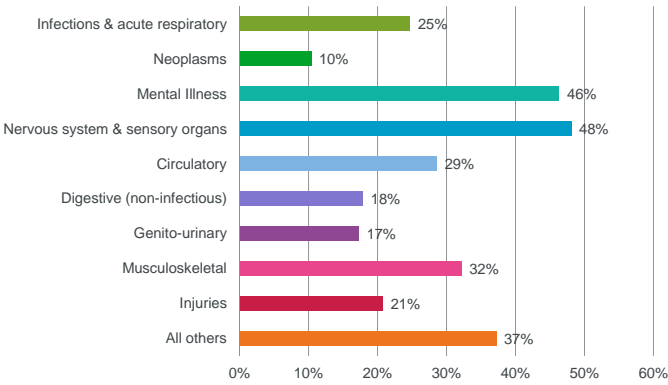
20 May 2013

23

Where are the costs of IP?

Long term claims:

- Overall, around a third of incepted IP claims never return to work, and there is notable variation in this by cause:



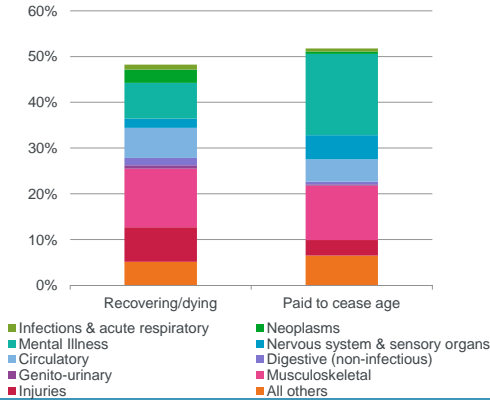
20 May 2013

24

Where are the costs of IP?

This allows us to focus on the areas where we can make a difference through early intervention:

- Around half of the overall cost of IP is in respect of claimants who are paid until the cease age of the cover.

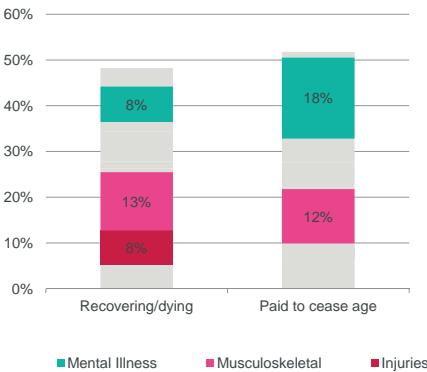


20 May 2013

25

Where are the costs of IP?

This allows us to focus on the areas where we can make a difference through early intervention:



20 May 2013

26



Institute
and Faculty
of Actuaries

How can early intervention impact the costs?

20 May 2013

erlise
 onsorship
 Thought leadership
 Progress
 Community
 Sessional Meetings
 Education
 Working parties
 Volunteering
 Research
 Shaping the future
 Networking
 Professional support
 Enterprise and risk
 Learned society
 Opportunity
 International profile
 Journals
 Support

How can early intervention impact the costs?

It depends on the illness:

- The first stages of the intervention will tend to be the same:



Institute
and Faculty
of Actuaries

20 May 2013

28

How can early intervention impact the costs?

It depends on the illness:

- Then things start to diverge, for example, with a back pain related absence we would start with one, some, or all, of:

Physio
Assessment

Around 60% of lives in sedentary roles may need looked at by a physio
The initial assessment would cost about £70

Workplace
Assessment

As similar proportion would need a workplace assessment
This would cost around £250

- For manual workers we would expect that a higher proportion would benefit from the physio than the workplace assessment and refer accordingly



Institute
and Faculty
of Actuaries

20 May 2013

29

How can early intervention impact the costs?

It depends on the illness:

- Then things start to diverge, for example, with a back pain related absence we would start with one, some, or all, of:

CBT

40-50% of lives may need a more in depth CBT assessment

Pain Management

There will also be some members who could return to work following a course of pain management

- These treatments are more expensive than the initial assessments and so would tend to be commissioned where we felt they would yield positive results



Institute
and Faculty
of Actuaries

20 May 2013

30

How can early intervention impact the costs?

- Where the additional assessments do not find an immediate solution, we would tend to expect members to move on to some level of physiotherapy – costing around £50 per session
- We would also anticipate some members requiring rehabilitation services once the treatment is complete so they can easily return to work
 - Particularly where the absence has been longer term
 - These would be performed in conjunction with the employer where necessary
- The case manager would be assessing each new treatment as and when it is needed
- An average course of treatment for a member suffering from back pain may involve:
 - 2 or 3 key decision points
 - £1,000+ of intervention costs
 - A reduction in claim inception rates of 1/3 to 1/2 from the normal level of less focussed rehabilitation



20 May 2013

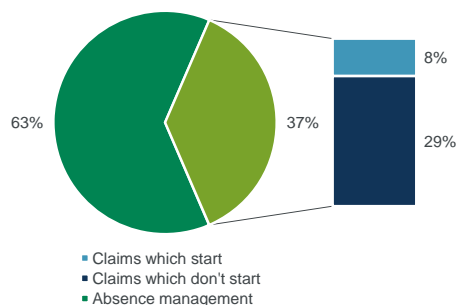
31

How can early intervention impact the costs?

What does early intervention do to our expense costs:

- We can split our expense costs between the different areas:

Split of claim expense costs



- Bulk of the cost is for the absence management
 - Average annual premium is around £300 per member (Swiss Re Group Watch)



20 May 2013

32

How can early intervention impact the costs?

How do we know if our early intervention is worthwhile:

- Nearly a third of our estimated expenses are in respect of claims which never incept
- Those will include:
 - Claims which would never have incepted
 - Claims where our early intervention has made a genuine difference
- If the savings from the latter exceeds the cost of the former, then we're happy
- If it exceeds the former **and** the absence management costs we're very, very happy



20 May 2013

33



Institute
and Faculty
of Actuaries

How did we adjust the standard IP assumptions?

erlise
 onsorship
 Thought leadership
 Progress
 Community
 Sessional Meetings
 Education
 Working parties
 Volunteering
 Research
 Shaping the future
 Networking
 Professional support
 Enterprise and risk
 Learned society
 Opportunity
 International profile
 Journals
 Support

20 May 2013

How did we adjust the standard IP assumptions?

- Basic sickness & recovery model
- Absence management procedures
- Adjustments to the basic sickness & recovery model
- Impact on inception & recovery rates



20 May 2013

35

Sickness & Recovery Model

Sickness and recovery model

- Construct a time-homogenous Markov chain
- Generate the stationary distribution

Assumptions

- Independence
- Mortality rates

Model inputs

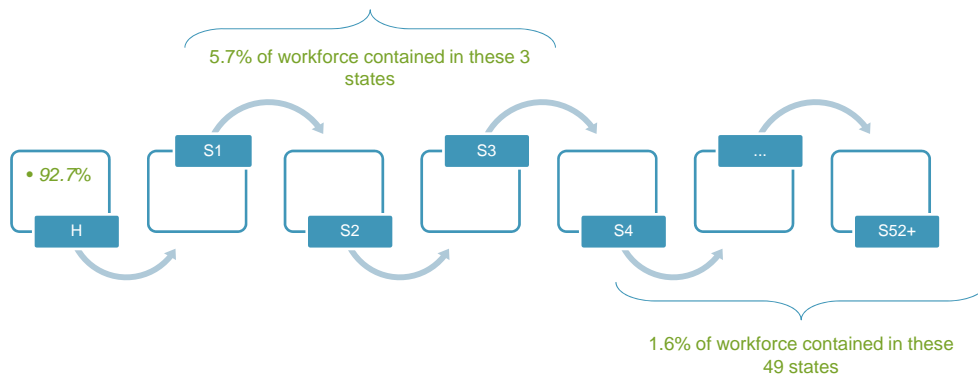
- Long term average healthy workforce is 92.7%
- 1.6% of the workforce at any one time have been sick for 4 weeks or more
- Remaining 6.3% of workforce will be in states S1, S2, S3



20 May 2013

36

Sickness & Recovery Model



20 May 2013

37

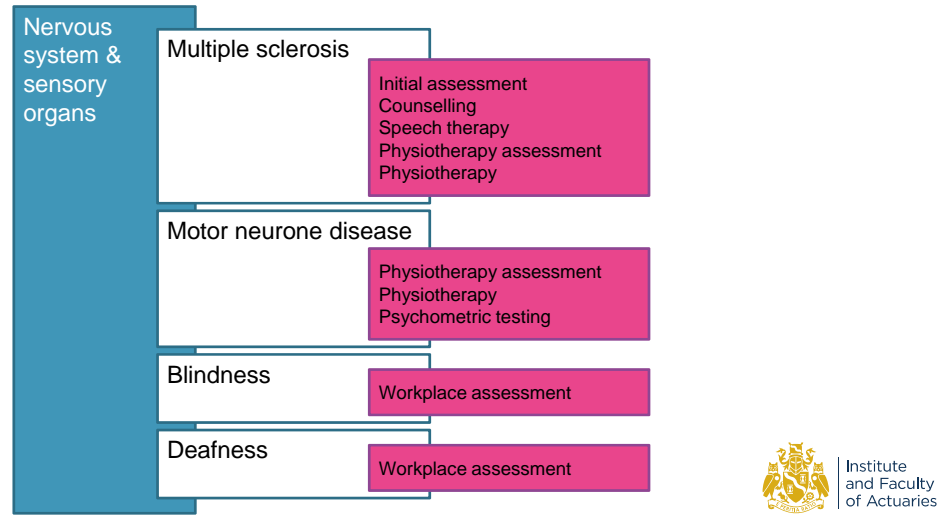
Absence Management Processes



20 May 2013

38

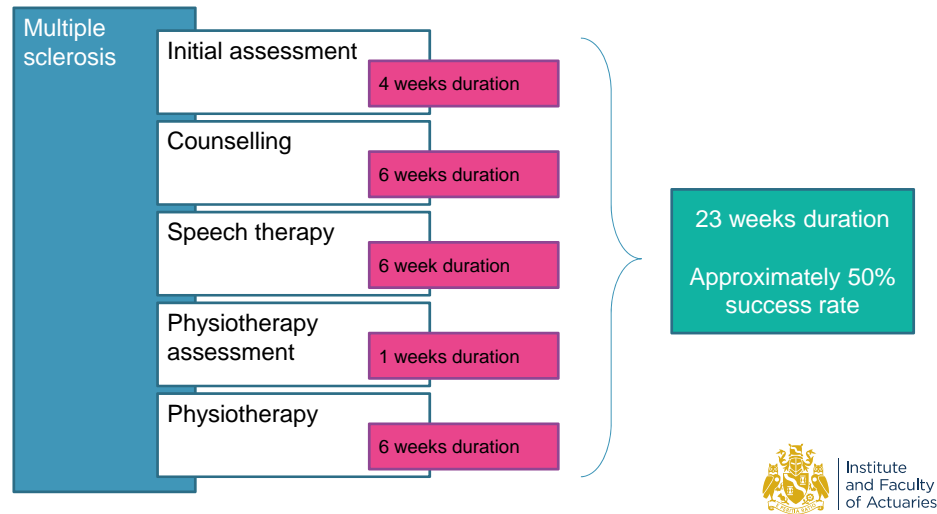
Absence Management Processes



20 May 2013

39

Absence Management Processes



20 May 2013

40

Absence Management Processes

Nervous system and sensory organs

Medical Condition	Total duration	Estimated success rate
Multiple sclerosis	23	50%
Blindness	1	20%
Deafness	1	30%
Motor neurone disease	8	30%
Nervous system & sensory organs	23	48%



Institute
and Faculty
of Actuaries

20 May 2013

41

Absence Management Processes

CMI WP23 Grouping	Success rate	Max duration
Infections & acute respiratory	44%	7
Neoplasms	34%	10
Mental Illness	48%	16
Nervous system & sensory organs	48%	23
Circulatory	30%	29
Digestive (non-infectious)	26%	10
Genito-urinary	20%	10
Musculoskeletal	36%	21
Injuries	10%	11
All others	30%	22



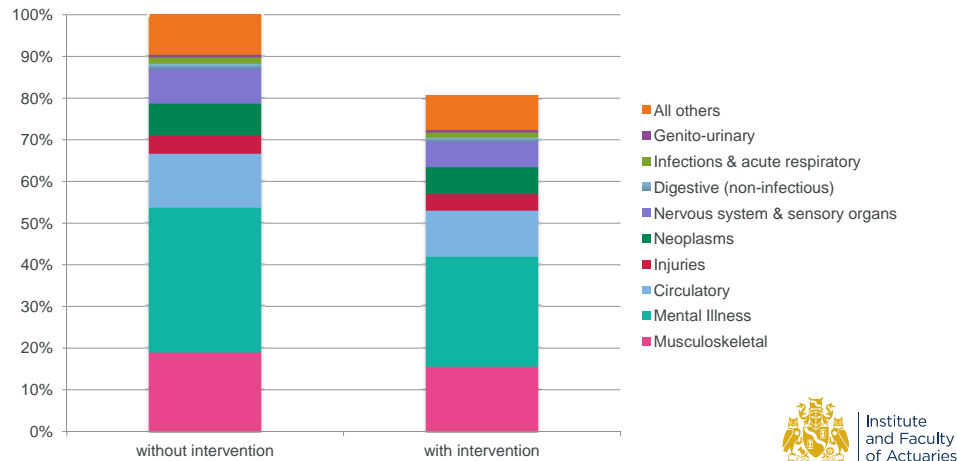
Institute
and Faculty
of Actuaries

20 May 2013

42

Adjusting the model

Mix of lives absent by absence cause

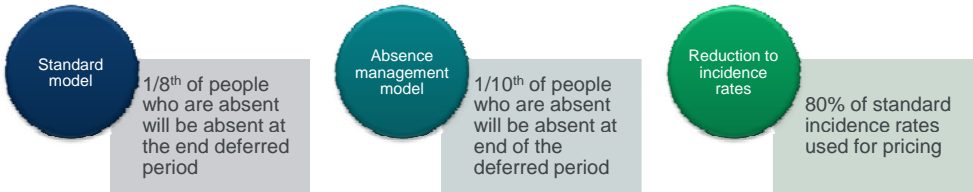


20 May 2013

43

Adjusting the incidence rates

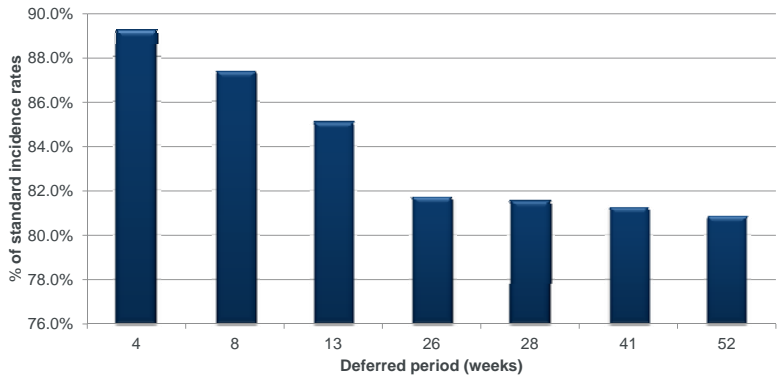
- Sum the lives in each duration absent to obtain proportion claiming for each deferred period
- Compare proportion claiming under standard transition matrix to obtain incidence rate reduction



20 May 2013

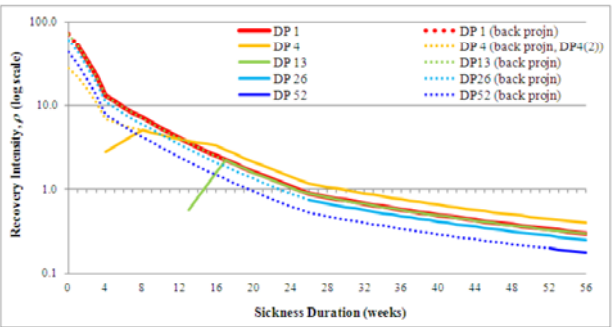
44

Adjusting the incidence rates



Recovery rates

- Traditionally IP has a run in to the long term recovery rates, varying by deferred period:

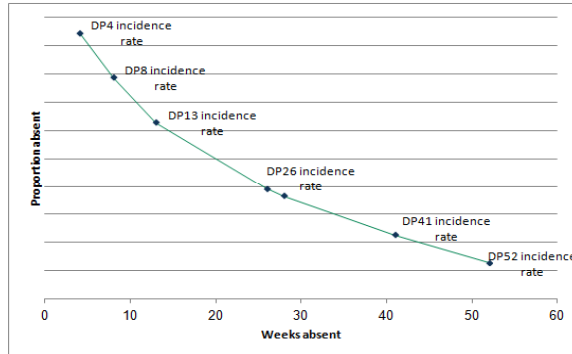


Graph from CMI WP 48

- This is driven by delays in getting the claimant involved in the claims management, especially when the notification happens at, near, or after, the end of the deferred period

Recovery rates

- As we are intervening as early as possible, regardless of deferred period we would not expect to see this pattern on our product.
- However we also don't see the "quick win" recoveries that are implicit in the normal IP rates
- Recovery rates are set such that all deferred periods converge to the same proportion absent after 52 weeks:



Summary – is it worth it?

- Clients will be keen to purchase InteractPlus if:
 - It can reduce employee absence
 - It is no more expensive than a standard income protection product
- It is worth offering InteractPlus if the reduction in claims costs is greater than the increase in expenses
- We believe it is!



Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

