Expectation of sickness absence duration: a review on statements and methods used in guidelines in Europe and North America

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Introduction

Sickness absence, the behaviour of a worker who, for physical, psychological or social reasons stays away from work, has a major impact on workers, families, health care systems and economies.¹ Insurance companies are particularly affected by the duration of sickness absence. Certifying professionals, frequently general practitioners, tend to dislike discussions with patients about expected duration of sickness absence as they feel uncertain about it.²⁻⁷ Both insurers and certifying professionals have expressed the need for evidence-based guidelines on duration of sickness absence.⁸

Several such guidelines exist and some address, for many health conditions, consequences for work, treatment, rehabilitation and expected duration of sickness absence.⁹⁻¹⁰ Some guidelines focus on work-related injuries (e.g. workers’ compensation systems), others address a single disease¹⁰ and still others provide guidance on several diseases. Application of these guidelines can impact certification and management of sick leave in the individual case, especially if they claim to be state-of-the-art and/or evidence-based.¹¹,¹² By serving as a ‘neutral’ authority, guidelines may narrow discussions between provider and patient, in particular regarding expected duration of the sickness absence.

Return to work depends on disease but also on the nature and circumstances of the work, personal (age, education, sex), cultural and organisational factors, including accessibility and quality of health care delivery.¹³ Given all these determinants, it seems challenging to develop guidelines that include statements about expected duration of sickness absence for multiple diseases.

To add to the body of knowledge, we compiled and examined guidelines on sickness absence duration that were in use in different countries in Europe and North America. Our research questions were:

- Which guidelines addressing sickness absence duration are in use in Europe and North America?
- How do these guidelines compare with respect to:
  - Diagnoses treated
  - Expected duration of sickness absence
  - Methods of development
  - Have these guidelines been evaluated or validated?

Methods

We included guidelines in use, in any language, that contain statements about expected duration of sickness absence from work for specific diagnoses; that were developed for use by sick leave certifying physicians; and that cover multiple diseases.

We examined those in Dutch, English, French and Spanish directly; those in other languages only if supported by experts of
the respective countries. We excluded guidelines and directives that were: (i) original research studies and reviews on observed duration of sickness absence; (ii) limited to sickness absence other than in work (e.g. school absences); (iii) only addressing work-related injuries and health conditions for use in workers’ compensation contexts; (iv) clinical guidelines on disease management and (v) guidelines that had been, but were no longer, in use.

Question 1: The guidelines we were looking for tend to be published nationally, not through scientific literature databases such as PubMed. Therefore we searched in three ways: Medline, experts and the internet. In 2013, we searched MEDLINE using the search term sick AND certify AND guidelines. We also searched with MeSH headings identified from two relevant papers. In 2014, we approached experts from Europe, Canada and the US. We approached representatives of the European Union of Medicine in Assurance and Social Security (EUMASS, www.eumass.com). EUMASS unites insurance medicine experts from 20 European countries who work in organisations of health, life or social insurance (public or private). The national representatives are chief medical advisers of social insurance and comparable, all at leading positions and with a long experience in this field. We also contacted researchers/experts in Canada, the US and Spain. Via email, we asked these experts about guidelines that met our criteria. In both 2014 and 2015, we conducted Internet searches through two general search engines (Google and Duckduckgo) and one search engine on medical guidelines (tripdatabase.com) with the key words ‘disability guidelines,’ ‘disability duration’ ‘sickness absence duration’, ‘sick leave duration’ and ‘return to work.’ We examined each guideline that we found through any of these canals on it’s fitting to our inclusion criteria.

Question 2: In order to compare the included guidelines we used the published guidelines as sources and for further questions the developers of the guidelines. We extracted for each guideline the title, country, publishing organisation, publication date, target population and sample population (all workers or specific groups), target audience (sick leave certifying physicians and/or claims assessors) and the number of ICD Codes covered. For each guideline we extracted the basis on which diseases were selected for inclusion.

Across all guidelines, we compared expected duration as described in the guidelines. We selected five diagnoses that we considered representative for the spectrum of diseases in sickness absence of medium duration, converted to ICD-10 codes (adjustment disorder F43, depression F32-33, acute myocardial infarction I21, low back pain M54 and breast cancer C50). Regarding duration of sickness absence, we extracted: (i) reporting as statistical measures (percentiles, mean and median), as estimations (such as optimum) or otherwise; and (ii) whether subgroups were specified (e.g. age, sex, disease severity, complications or comorbidities, work requirements).

We examined all guidelines about information on their development. If expert consensus was used to phrase expectations, we summarized expert credentials, and the method used to reach agreement. If data registries were used, we assessed the quality of the data source and whether it was representative of the target population. If varying sources were used, we noted if and how the data had been merged. We examined the methodology (e.g. systematic review, meta-analysis, narrative, eclectic) of literature reviews, if these were used.

Question 3: We searched MEDLINE using the guideline name, with ‘evaluation’, and we also contacted the guideline developers to identify any evaluation of the guidelines.

Author MM extracted the information on guideline characteristics; information about expected duration and development was extracted by pairs of authors (MM, WB, ML, FB, GD). In case of disagreement, a third author would decide. The information on each guideline was summarized and sent to the guideline developer, requesting their review for accuracy and clarification.

Results

Guideline identification

We received 20 replies from the 23 countries we contacted. Four countries (France, Netherlands, Spain and Sweden) reported guidelines meeting our criteria.

Our internet searches identified three more guidelines: the American Medical Association (AMA) Guides to Evaluation of Work Ability and Return to Work, a web-based return-to-work toolkit (MD Guides or MDG, previously known as MD Advisor, henceforth US 1) and the Official Disability Guidelines (ODG, henceforth US 2). We excluded the AMA Guides as these are entirely based on the MDG.

Our MEDLINE search did not identify any additional guidelines.

Diagnoses treated

Guidelines addressed from 63 (French) up to 65000 (ODG) diagnoses, in ICD 9 (Spanish, US 1) or ICD 10 (Dutch, French, Swedish, US 2) codes. Diagnoses were sometimes split up according to treatment situation (e.g. after surgery or when using drugs).

Table 1 summarizes the selected guidelines and their characteristics.

Expectation of sickness absence duration

The five diseases we selected appeared with 59 ICD-10 codes in the guidelines (low back pain, 12 codes; adjustment disorder, 11; breast cancer, 9; depression, 14; acute coronary infarction, 13). For an overview of these codes in conditions of the low back, see table 2. The other health conditions are shown and compared in Supplementary Appendices 1–4. Of 12 codes of low back pain, only code M 54.5 (low back pain proper) was addressed in all guidelines, see table 2.

Six guidelines present estimations about expected duration of sickness absence, in terms of minimum, optimum or maximum; only Dutch does not. US 1, US 2 and Dutch present observations of duration. Dutch only includes cases that have lasted at least 42 days.

The US 1 and US 2 and French guidelines specify expected duration in relation to work demands (e.g. clerical/modified; manual; heavy manual); only US 2 defines these demands (Clerical/modified work: Lifting with knees (with a straight back, no stooping) not more than 5 lbs up to 3 times/h; squatting up to 4 times/h; standing or walking with a 5-min break at least every 20 minutes; sitting with a 5-min break every 30 min; no extremes of extension or flexion; no extremes of twisting; no climbing ladders; driving car only up to 2 h/day.). In the Spanish guidelines the expected duration, a standard number of days, is stratified to age (<36, 36–55 and ≥55) with an adjustment factor, specific for each ICD 9 chapter (ranging from 0.70 to 1.30). The expected duration is further stratified by occupation, divided into 17 job groups such as clerks and construction workers (for all groups see Supplementary Appendix 1). The job groups were derived from the 2011 Spanish National Classification of Occupations. Each group of jobs gives an adjustment factor which is specific for each ICD 9 chapter (ranging from 0.63 to 1.39).

US 1 presents low back pain with observed sickness absence duration (41 905 cases). It suggests an optimum duration in low back pain of 1 (sedentary job) to 42 days (very heavy job) and presents an observed mean duration of 34 days. US 2 suggests 0–49 days (median, 17; mean, 28.8), whereas French recommends 1–35, Spanish 9–19 days and Swedish suggests maxima of 7–14 days.

Development of statements on expected duration of sickness absence

We asked contact persons from all guidelines about the development of the guidelines because none of the original publication described that in detail; see table 3. Diseases were selected either on prevalence in sick leave certification practice or following the ICD in its entirety.
Evaluation of the statements on expected duration of sickness absence

The guidelines French, Spanish and Swedish are developed and in use by insurance companies; US 1 and US 2 are in use with insurance companies and industries. Health professional are also expected to use the guidelines, in the individual case as indicative and supportive for decision making. It is unclear how the guidelines are used in practice; they might be used as evidence in cases where GP and insurance have different opinions. We found the following in the literature about the guidelines we identified. Skaner\textsuperscript{22} reported that 72\% of responding GPs in Sweden said they used the Swedish guideline (but not how); 47\% of these found the statements of expected duration problematic to use. Delclos et al.\textsuperscript{8} discussed an earlier version of the Spanish manual, finding the use of the observed mean as basis for the optimum, problematic. Nuckols\textsuperscript{23} and Ju\textsuperscript{24} compared the development of US 2 to the AGREE Criteria (the international tool for the assessment of practice guidelines http://www.agreetrust.org/) and found just over 80\% correspondence. Ju\textsuperscript{24} also reports that it was uncertain if US 2’s search for evidence was comprehensive and if bias in the selection of articles was avoided.

Discussion

In a systematic survey among 24 countries in Europe and North America, we identified six guidelines for sick leave certification which we compared. These guidelines addressed from 63 up to 65 000 diseases, coded in ICD 9 or 10 at the 3 or 4 digit level, and contained expectations about sickness absence duration per diagnosis. The guidelines reviewed express these expectations in different ways (identification of disease, expression of the duration, stratification into subgroups of work requirements) and are therefore difficult to compare. For low back pain (M54.5), we found observed median durations ranging from 17 (US 2)–34 (US 1) days. It seems unlikely that differences in labour marker and health care services would account for these differences. Differences in the source population, data collection and merging might play a role here. The statements most often stem from expert consensus procedures that are not clearly described and, as far as we could find, not performed in a formalised manner. The evidence stems from eclectic literature searches and either unclear or unsystematic real life data. Dutch reproduces observed data and Spanish adjusts the mean ‘optimal’ duration in observed data by age and occupational factors. For low back pain maxima vary between 14 (Swedish) and 49 days (Spanish)3 5(US 1)–34 French) and 42 days (US 1) in between. Differences in selection and use of the literature and in preferences of experts might play a role here.

Our study has several limitations. Other guidelines might exist, notably in countries other than those that responded to our request. From five diseases, common in sickness absence of medium duration, we could compare only low back pain, in all guidelines. It is possible that our findings would have been different for other diseases. We did not study how the expected (or recommended) durations correlate with ‘real world’ practice, as this was beyond the scope of the study; however, this might shed a different light on their impact. The way data are analysed and merged in US 1 and US 2 was not disclosed to us.

The guideline developers used experts, scientific literature and real life data in a ‘pragmatic manner’. The differences in results are not negligible and there is no saying which guideline is the most right. All in all the statements seem to represent weak recommendations, based on a variable quality of evidence.

We asked ourselves if a better approach would be possible. Using one grid for many different diseases with each their own expression...
Table 2 Statements on sickness absence duration: disorders of the low back

| Health condition | French (1) Optimum (range) | Spanish (2) Optimum (range) | Swedish (3) Maximum | US-Guideline 1 (4) Optimum (range) | US-Guideline 2 (5)Optimum number of days | Dutch (6) N-number of patients (pts.) observed; quartile of pts.; dr-days | US-Guideline 1 (4) Optimum number of pts.; observed; quartile of pts.; dr-days | US-Guideline 2 (5) N-number of pts.; observed; quartile of pts.; dr-days |
|------------------|---------------------------|----------------------------|---------------------|---------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Low Back Pain    | M54.5                     | From 1 (sedentary work) to 35 (heavy-physical work) | 14 (9-19) | Up to 7 restrictions to perform physically easy work. Up to 14 restrictions to perform physically heavy work. | From 1 (sedentary work) to 42 (very heavy work with non-specific treatment) | From 0 (mild clerical/modified work) to 49 (severe- heavy-manual work) chemical dependence comorbidity. | N=130 | N=41‘905 | Median=34d 1st quartile=14d 3rd quartile=80d | Median=17d 90th percentile=50d |
| Sciatica         | M54.3                     | From 2 (sedentary work) to 35 (heavy-physical work) | 30 (18-42) | -- | -- | N=8’596 | Median=47d 1st quartile=21d 3rd quartile=94d | -- |
| Radiculopathy    | M54.15, M54.16, M54.17    | -- | 30 (18-42) | -- | -- | -- | N=9’540 | Median=63d 1st quartile=32d 3rd quartile=116d | -- |
| Other Dorsalgia   | M54.89                    | -- | 14 (9-19) | MS/ M54: From 21 (light work) to 42 (heavy work) | From 0-3 (clerical/modified work) to 10 (manual work) to 20 (heavy manual work) | -- | -- | N=n.r. | Median=20d 90th percentile=32d |
| Dorsalgia unspecified | M54.9                | -- | 14 (9-19) | MS/ M54: From 21 (light work) to 42 (heavy work) | From 0-3 (clerical/modified work) to 10 (manual work) to 20 (heavy manual work) | -- | -- | N=n.r. | Median=20d 90th percentile=32d |
| Other specified inter-vertebral disc displacement | M51.26 | From 21 (sedentary work) to 84 (heavy-physical work) | 30 (18-42) | Lumbar disc surgery: From 21 (light work) to 42 (heavy work) | Medical treatment: From 7 (1-156; very-heavy work) Surgical treatment: From 14 (3-35; sedentary work) to 56 (42-140; very heavy work) | Conservative medical treatment: From 0-3 (clerical/modified work) to 28 (manual/ heavy manual) If regular work cause of disability 84 | -- | -- | N=n.r. | Median=70d 90th percentile=159d |
| Other specified inter-vertebral disc degeneration | M51.36, M51.37 | From 21 (sedentary work) to 84 (heavy-physical work) | 20d (12-28) | -- | -- | Mild cases & initially conservative medical treatment 28 manual/ heavy manual | -- | -- | N=18‘099 | Median=29d 1st quartile=13d 3rd quartile=68d | N=n.r. | Median=29d 90th percentile=70d |
| Spondylolysis and Strain of Lumbar Spine | S33.5 | -- | 15 (9-21) | -- | Mild clerical/modified work 0; severe with heavy work, chemical dependence comorbidity 35 | -- | -- | N=49’109 | Median=24d 1st quartile=11d 3rd quartile=56d | N=n.r. | Median=17d 90th percentile=39d |

Legend: ‘–’; no data; n.r.: not reported; pts: patients.

(1) French Optimum: the number of days in which the majority of employees is able to resume working, (sedentary to physically heavy work); adjust for: age and physical condition of patient, psychological factors, opportunities for workplace adaptation, employment and (exceptionally in this fiche repère) socioeconomic context.

(2) Spanish Optimum: standard number of days, adjusted for occupational- and age-correction coefficients.

(3) Swedish Maximum: for physically easy jobs (little lifting, bending and twisting), and for physically demanding jobs (much lifting, bending and twisting).

(4) US 1 Optimum: the window in time during which most employees will return without risk to themselves and others.

(5) US 2 Optimum: expert opinions of optimal physiological healing times.

(6) Dutch only includes observations of cases of over 42 days of sickness absence, no expectations.
and situations after treatment, in connection to different kinds of work requirements seems challenging. Vonk Noordegraaf et al.\textsuperscript{18} developed expectations for work resumption for one health condition (status after hysterectomy). They recruited expert physicians (gynaecologists, GPs and OPs) through medical boards and based recommendations on a literature review and a modified Delphi procedure. The expert panel judged 38 different work activities relevant for convalescence recommendations, which led to a refined system of recommendations. This illustrates that developing guidelines in a systematic manner for many diseases and tuned to differences in work requirements, would require a huge effort.

Spanish uses observed sick leave in a systematic manner. Respondents from French and Swedish stated that diagnoses in their registers of sickness absence are partly unreliable. Moreover, registers are partly inaccessible because of privacy and legal considerations and partly incomplete when it comes to work requirements. Prospective studies on sickness absence according to health condition and work requirements (and ideally interventions to promote return to work) would be needed to fill the gap of data. A challenge would be to study these in an internationally comparable way.

The guidelines may have more impact than their evidence base allows, especially since many are developed by or for insurance companies. Evaluations of the practical impact, or formal validation of the expectations, have not yet been carried out, but would appear to be urgently needed.

Scientifically the guidelines on expected sickness absence duration go largely unnoticed and are not well integrated into practice models. Sickness absence and its certification and promotion of return to work have been studied extensively over the past decades and found to be of a complex and sometimes controversial nature. We need a better understanding of these processes in order to be able to define the possible contribution of guidelines in the certification of sickness absence.

**Conclusions**

In several countries, certifying physicians are provided with guidelines that contain statements about expected duration of sickness absence for different health conditions. These statements seem to have a limited base of evidence and an unknown impact. Improvement is possible but faces large challenges in organisation and resources.

**Ethical approval**

Under Swiss law on health research this study is exempt from review by an ethics committee.

**Supplementary data**

Supplementary data are available at EURPUB online.

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**Conflicts of interest**: M.L. works at the institution that developed the Fiches Répèrées and was co-author of several of them but none of the ones we compared.

**Key points**

- Guidelines on expectation of duration of sickness absence are provided by different providers
- These guidelines give partly different recommendations and their evidence base is unclear
- So far, the effectiveness of these guidelines has not been evaluated

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**Table 3** Development of the statements about expectations on sickness absence duration in guidelines

| Guideline | Selection diseases | Development of statement of expected sickness absence duration | Formal consensus procedure | Literature review | Data quality |
|-----------|--------------------|-------------------------------------------------------------|-----------------------------|-------------------|-------------|
| Dutch     | Frequency of occurrence with OPs | Data from monitor of 75 Occupational Physicians on 500 ICD-10 codes, 2000 cases of > 42 days included | No | Not applicable | Compared to sick leaves (N = 45 000) of three big OH Services, found to be representative |
| French    | Frequency with GPs | Expert consensus, data from different sources, literature and external review by High Authority of Health | No | Eclectic | Unclear: data of sick leave deduced from data of treatment |
| Spanish   | Diseases that occurred at least 1 in 100 000 cases | Data from Spanish social insurance: about 3.5 million cases. Expert consensus on how to analyse these data | No | Not applicable | Unclear |
| Swedish   | Burden of disease/ frequency of occurrence | Expert consensus and literature | No | Eclectic | Not applicable |
| US 1      | Near to all ICD-9 codes included | Expert consensus, data from different sources: 6 million insurance claims, (U.S. and international from industry) | No | Eclectic | Unclear |
| US 2      | All ICD-10 codes included | Expert consensus, based on scientific and professional literature, data from annual Surveys (NHIS and SOII)\textsuperscript{a}, and from employers and Workers Compensation schemes | No | Regular update of literature; unclear how this is executed | Unclear |

\textsuperscript{a}: BLS, Survey of Occupational Injuries and Illnesses; CDC, National Health Interview Survey; SOII: Bureau of Labor Statistics; NHIS: Centers for Disease Control and Prevention.
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