ORIGINAL ARTICLE

A Belgian consensus on the definition of a treat-to-target outcome set in psoriasis management

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Abstract

Objective Treat-to-target (T2T) is an algorithm to reach a predefined outcome. Here, we define a T2T outcome for moderate-to-severe psoriasis vulgaris.

Methods Briefly, the study included a literature review, discussions with key opinion leaders, recruitment of additional dermatologists with experience in managing moderate-to-severe psoriasis, 3 eDelphi survey rounds and a patient focus group. Relevant topics were selected during discussions prior to the survey for the statements. Surveys were based on the eDelphi methodology for consensus-building using a series of statements. Consensus was defined as at least 80% of participants agreeing. A psoriasis patient focus group provided feedback on topic selection and outcome.

Results A total of 5 discussions were held, and 3 eDelphi rounds were conducted with an average of 19 participants per round. The T2T outcome was set assuming shared decision between patient and dermatologist, awareness and referral for comorbidities by the dermatologist and appropriate treatment adherence by the patient. We defined 'ideal' and 'acceptable' targets; the latter referring to conditions restricting certain drugs. The T2T outcome was multidimensional, including $\geq \Delta$PASI90/75 or PGA ≤ 1, itch VAS score ≤ 1, absence of disturbing lesions, DLQI $\leq 1/3$, incapacity daily functioning VAS score ≤ 1, safety $\leq$ mild side-effects and full/mild tolerability of treatment for the ideal and acceptable target, respectively. Finally, time to achieve the T2T outcome was set at 12 weeks after initiation for all treatments. At all times, safety should not exceed the presence of mild side-effects.

Conclusion With this novel T2T composite outcome for psoriasis, clinicians and patients can make shared decisions on the treatment goals they envisage, as a guidance for future treatment steps – leading to a tight control management of the disease.

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Conflict of interest

None to be declared, see COI form.

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Introduction

Treat-to-target (T2T) applies 'tight control' in the treatment of diseases and implies achieving predefined therapeutic targets within a limited time window. It includes a strict follow-up from the patient and regular assessments of disease progression based on standardized measurements. Originally conceptualized to better compare clinical trials in diabetes, T2T has found its way to other chronic diseases. Studies for rheumatoid arthritis (RA), inflammatory bowel diseases (IBD) and psoriatic arthritis (PsA) have shown that tight disease control is realistic, feasible, more effective than standard care and cost-saving in the long run.[1–7] Especially in RA, the T2T concept has transformed the approach of RA management, including 'early and aggressive' treatment.[8,9]

Psoriasis is a chronic skin disease that poses a heavy burden on patients physically, mentally and socially.[10] Patients often go through a trial-and-error approach before finding a treatment that controls their disease, a journey that may take between 11 and 19 years.[11] Today in psoriasis, we have highly efficacious treatment options available. However, real-life data show that time to optimal treatment is still too long and that persistence of the newest biologics is unexpectedly low[12–16] and the complexity of psoriasis makes it a multimorbid condition,[17,18] making management challenging. The hit-hard-and-early strategy has been discussed.[18–21] As a systemic inflammatory disease, psoriasis is plagued by comorbidities, including psoriatic arthritis and cardiovascular diseases that may reduce life expectancy.[22] Interestingly, recently Mehta's group showed that treatment with biologics could reduce coronary inflammation and healthcare resource consumption.[23,24] Furthermore, duration of skin lesions has been linked to the risk of PsA, hypothesizing that early and aggressive intervention may prevent the development of PsA,[25] and perhaps other comorbidities. Moreover, we should also pay attention to the Cumulative Life Course Impairment that patients with psoriasis experience, including a heavy burden on their social and mental well-being over several years living with the disease.[10,26] These arguments, combined with the 11–19 years long journey mentioned earlier, pose a significant threat to the patient's overall well-being, requiring a system wherein health care can be delivered to reduce the disease burden as soon and as effective as possible – which can be provided with a T2T approach. Indeed, many challenges addressed by T2T in RA, IBD and PsA are also present in psoriasis. Hitherto, several attempts have been made to define a treatment target, which are listed in Table 1.[27–30] Some targets are unidimensional and solely rely on disease severity, whereas others consider quality of life (QoL) as well. Yet, taking the Tight Control for RA and PsA (TICORA and TICOPA, respectively) studies into account,[6,7,31–33] multidimensionality better reflects the patient's global status. We illustrated this need by developing a specialized consultation to manage psoriasis according to its multileveled needs.[34] In addition, targets for a T2T approach need to be well-defined: the Canadian definition includes a 'satisfied patient', but lacks a validated patient-reported outcome (PRO) to define this. Moreover, patient-centred care stipulates that the patient becomes a full partner in choosing preventive and therapeutic measures for his/her disease. Finally, the targets from Table 1 cannot be implemented everywhere due to local regulation and reimbursement criteria: for instance, the Spanish consensus is not applicable in Belgium since biologics are not reimbursed as a first-line therapy for moderate-to-severe psoriasis. However, within each local regulatory setting, we need to choose a target for the T2T approach that accurately reflects the patients' and physicians' expectations.[9]

Here, we used a Delphi approach to achieve consensus and propose a T2T outcome set for psoriasis. The criteria apply for moderate-to-severe psoriasis vulgaris and imply the use of systemic therapy, including conventional and biological drugs. Our paradigm can be used as a treatment guide relevant for both patient and physician, in order to steer psoriasis management decisions.

Methodology

A detailed description can be found in Supplementary materials and methods (File S1). In summary, a literature review was performed which was discussed with key opinion leaders. Topics were selected based on discussions, and statements were formulated. Additional biologic-experienced dermatologists were recruited to participate. A survey was developed based on the statements, and an iterative eDelphi methodology was employed. Consensus was defined as at least 80% of participants in a single answer category. Patients provided feedback on the relevance of the statements from round 1 and the final outcome.

Results

Nominal discussions with key opinion leaders and patient feedback

A total of 7 Belgian KOLs participated in the nominal discussions. Per discussion, a written report was sent to the KOLs for revision. The first debate mainly focused on general issues dermatologists encounter during moderate-to-severe psoriasis management and how a T2T approach may solve these issues. Generally, the Belgian threshold of Psoriasis Area Severity Index (PASI) of ≤10 for eligibility for biological treatment was considered 'too harsh', excluding patients with a score < 10, but who severely suffer from their disease either psychologically or due to functional impairment, e.g. severe itch, genital or socially embarrassing localizations. Consequently, ΔPASI75 is realistic nowadays, but was considered not sufficiently ambitious as we can now strive for (almost) clear skin. Some suggested that the target should approach a status of 'disease-free feeling'. However, it

Table 1 Reported psoriasis tight control targets

	Skin	QoL	Remarks
European Recommendations[16]	• Grading from mild to moderate-to-severe • Mild: BSA ≤ 10 or PASI ≤ 10 • Moderate-to-severe: BSA > 10 or PASI > 10; visible area's or severe nail involvement	• Grading from mild to moderate-to-severe • Mild: DLQI ≤ 10 • Moderate-to-severe: DLQI > 10	**Timing** • Induction: 0–16/24 wks (drug-dependent) • Maintenance: after induction phase
Canadian Recommendations[17]	• Simple and absolute target for both physician and patient • PGA = 0 (total clearance, taken comorbidities and patient satisfaction into account)	• PRO not practical • Ultimate goal: satisfied patient	**Treatment** • Dependent on physician, patient and options • Affected by knowledge, comfort and reimbursement **Beyond Skin** • Comorbidities: contraindicative for treatment option • Off-target beneficial effects of anti-psoriasis treatment **Long-Term Success** • Frequent assessments of success: optimize or switch • Prolonged remissions without loss of efficacy • No worsening of comorbidities
Spanish Recommendations[18]	**Ideal** • ΔPASI90% • PGA ≤ 1, or alternatively a minimal and controllable localized involvement with topical treatments (PGA ≤ 2 and PASI < 5) **Acceptable** (initial and >24 wks) • ΔPASI75% • PASI < 5 • PGA ≤ 1 **Minimal** • ΔPASI50% • <ΔPASI50% if patient is satisfied with the result	**Ideal** • DLQI ≤ 1 **Acceptable** (initial and > 24 wks) • DLQI < 5 **Minimal** • DLQI < 5	
North American Recommendations[19]	**Ideal** • ΔBSA ≤ 1% at 12 wks • ΔBSA ≤ 1% during maintenance **Acceptable** • BSA ≤ 3% at 12 wks/during maintenance • ≥ΔBSA75% at 12 wks/during maintenance	Not defined	• BSA as single criterion (most familiar and feasible) • Assessment 12 wks post-initiation, regardless of therapy

BSA, Body Surface Area; DLQI, Dermatology Life Quality Index; PASI, Psoriasis Area Severity Index; PGA, Physician Global Assessment; PRO, Patient-Reported Outcome; Wks, Weeks.

was proposed that a disease-free feeling does not equal a safe status: a patient feeling 'disease free' might still be at risk of toxicity and should therefore be closely monitored by the dermatologist. On the other hand, a patient could reach complete skin clearance and yet not tolerate the treatment. In certain cases (e.g. pregnancy and history of cancer), not all systemic therapies can be prescribed. For these cases, the patient and physician can aim for an 'acceptable' target. It was therefore decided that each statement in the survey should be presented for the 'ideal' and 'acceptable' targets separately. Furthermore, appropriate terminology should be used to describe adverse events. A patient can exhibit no side-effects at all, yet show liver toxicity in blood work. On the other hand, there may be no measurable adverse event, yet the patient may complain that a treatment is uncomfortable. Therefore, it was proposed that 'safety' and 'tolerability' refer to adverse events from the physician's and patient's point of view, respectively.

All members agreed that symptoms such as itch and pain are sometimes underestimated and should be addressed during psoriasis management. In addition, including patient's treatment satisfaction was desirable for most panel members.

Lastly, the panel agreed that a T2T approach will most likely be multidimensional taking several parameters into account. For each parameter, a measure instrument needs to be chosen which can be easily implemented in any clinical practice. Furthermore, for each parameter, the preferred outcome needs to be defined. Based on these discussions, statements were formulated.

The statements developed for round 1 were reviewed by patients for relevance and were found satisfactory.

Delphi survey

Questions about the T2T target were presented in duplicate for both the ideal and acceptable targets. The first round consisted of 156 questions, the second round 104 questions. The third and last round included 28 questions (File S2). We registered 19, 20 and 17 participants for each round, respectively. All KOLs participated in each round. Consensus was reached for 49 statements in round 1, 17 in round 2, and 8 in the third round. The responses can be consulted in File S3.

Composite score and the role of the patient A perfect consensus was found for the statement that the T2T outcome should be a composite score, including various dimensions ranging from physical disease severity, QoL and the presence of comorbidities (File S3). In addition, participants unanimously agreed that making a shared decision with the patient is key in a T2T approach, for both the ideal and acceptable targets.

Physical symptoms We found no consensus on whether the physical target should be expressed as the Body Surface Area (BSA) or Physician's Global Assessment (PGA); only some consensus was observed for PASI. Good and very good consensus was found for defining the ideal and acceptable physical target as ΔPASI90 and ΔPASI75, respectively. No consensus was found for absolute PASI scores. PGA ≤ 1 was found favourable for the ideal and acceptable physical target (very good and good consensus, respectively).

Additional physical symptoms such as itch, pain, erythema and scaling were considered as well. In the 3 rounds, participants did not agree on whether to include pain, erythema and scaling. Itch was included in the target with a good and very good consensus for the ideal and acceptable targets, respectively. The degree of itch was presented in the survey as a score on a visual analogue scale (VAS; 100 mm). A maximum score of 10 mm was allowed for the ideal target. No consensus was found to define acceptable itch on a VAS. Based on the prevalence of itch and its impact on the QoL, the acceptable itch target was set at ≤10 mm (decision by the researchers). In round 3, the question whether pain, scaling or erythema should be excluded from the target led to no consensus either. As scaling and erythema are comprised in PASI, no additional round was performed. Pain remained a topic of debate, but was considered sufficiently reflected in the Dermatology Life Quality Index (DLQI) and daily performance—VAS as discussed below. During a discussion, it was unanimously agreed to leave out the pain, scaling and erythema.

Additionally, participants fully agreed that the location of lesions had a great impact as well and that this needed to be a PRO (perfect consensus). The patient should indicate whether socially impairing/difficult lesions are still present. A good consensus was obtained for the PRO as the following question: Is there an improvement in the patient's difficult lesions?

Quality of life Dermatology Life Quality Index was found favourable for both ideal and acceptable targets, whereas consensus for Patient Global Assessment was only found for the ideal target. For DLQI, the ideal target was set at ≤1. Some consensus was found for this statement for the acceptable target. After discussion, DLQI was set at ≤3 for the acceptable target. KOLs acknowledged that DLQI does not entirely grasp the (in) ability to perform daily tasks. Therefore, a VAS was introduced and formulated as follows: the degree of not being able to perform daily tasks should be ≤30/20/10 mm. Participants reached a very good and good consensus on targeting ≤ 10 mm for both the ideal and acceptable targets.

Safety and tolerability Very good consensus was reached for including safety in the target for both the ideal and acceptable targets. In both the ideal and acceptable targets, a 'mild' level of adverse events was allowed. It was suggested that the severity of AEs would be interpreted as the grading scale of the National Cancer Institute (NCI) 'Common Terminology Criteria for Adverse Events' (CTCAE).[35] Tolerability was agreed to be included in both the ideal and acceptable with good and very

good consensus, respectively. Full tolerability was considered ideal, where the patient positively replies to the question 'do you tolerate the treatment'. However, participants agreed that the patient's willingness to accept side-effects is the limiting factor (very good consensus). A mild form of intolerance was found satisfactory for the acceptable target: the patient reports a tolerability issue, but wishes to continue treatment.

Comorbidities We also inquired into the dimension of comorbidities in a T2T setting. Very good consensus was found for dermatologists being responsible for raising awareness around comorbidities. Furthermore, dermatologists need to refer to other specialists if comorbidity is suspected (good consensus). Yet, no consensus was found that the dermatologist should monitor and/or treat comorbidities.

Time Several time frames were proposed in round 1 inquiring how much time was required to achieve the T2T target, yet no

consensus was reached. There was some consensus for 12 weeks; however, very good consensus was found for the statement 'The timing of assessment during induction is dependent on systemic treatment type'. After discussion, the time window of 12 weeks was found most appropriate and unambiguous. The target was adapted to 'The timing of assessment during induction is preferably 12 weeks, but is dependent on systemic therapy type'.

Perception of the target composite score by physicians In the third round, participants rated the preliminary target for appropriateness, practicality and guidance (Fig. S1). Perfect and very good consensus was obtained for ideal and acceptable, respectively, for all three statements. Participants mainly expressed their worries regarding time consumption.

Perception of the target composite score by patients The final composite score, illustrated in Fig. 1, was presented to patients during a focus group discussion (*n* = 9). Patients initially
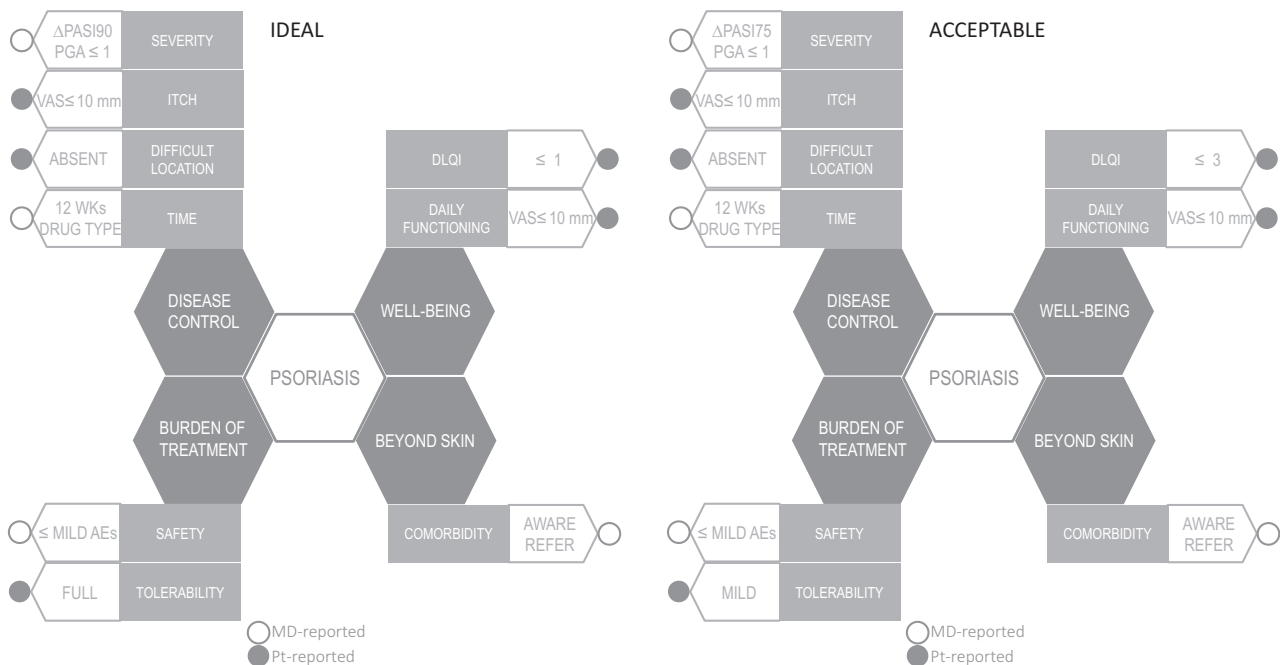
Figure 1 Belgian T2T ideal and acceptable outcomes for psoriasis management. Psoriasis requires a multileveled management, which can be facilitated through the use of a multileveled outcome. The treat-to-target setting requires that the disease management is governed by shared decision-making between physician and patient, and that the patient is treatment adherent. Four main domains were identified with subitems that were predefined for the ideal and acceptable targets depicted left and right, respectively. Disease control represents physical reflection of the disease, including severity, pruritus, localization of lesions and the time to see effect of the drug on these items. Items are reported by both physician and patient. Well-being consists of the DLQI and VAS for not being able to perform daily activities, both patient-reported outcomes. The burden of treatment represents the third domain, which distinguishes adverse events from the physician's and patient's point of view, safety and tolerability, respectively. Lastly, the disease is also managed beyond the skin in the fourth domain by raising awareness on comorbidities and actively referring to specialists by the dermatologist if necessary. Open and filled circles designate patient- and physician-reported outcomes, respectively. AEs, adverse events; DLQI, Dermatology Life Quality Index; PASI, Psoriasis Area Severity Index; PGA, Physician Global Assessment; Pt, patient; VAS, visual analogue scale; Wks, weeks.

responded to seeing the T2T outcome as 'logical' and sufficiently reflecting their reality of disease experience. The patients agreed with the distinction between an ideal and acceptable T2T outcome. All patients agreed on using the combination of the DLQI and a VAS scale for ability on daily performance to gather information on their well-being, as DLQI alone was found insufficient (e.g. the inconvenience of a nurse who repeatedly uses disinfectants whilst having plaques on hands and wrists).

Patients reported a desire to be involved in safety, too, in addition to tolerability. Many patients referred to methotrexate: the adverse events on the package leaflet were often not discussed during the consultation leading to suspicions on the dermatologist's safety judgement.

Furthermore, the setting was shortly discussed, including checking for treatment adherence. All agreed that a disciplined patient is key to correctly evaluate a treatment's success. Suggested questions included: 'how often do you treat with/take/inject your medication' or 'how do you like your treatment'. The patient's tolerability was highlighted as a key factor in treatment adherence and should be discussed with the dermatologist.

Patients evaluated the question for the difficult location of lesions. They reported the need for modification and redefined as following: 'Are there still lesions on locations that disturb you'.

More importantly, patients also pointed towards 'satisfaction' as an important parameter to be assessed and proposed a simple question to be added to the score: 'Are you satisfied with the treatment of your psoriasis'. Finally, during the discussion the T2T score items were discussed according to importance: no consensus was found on any item being more important than others.

Discussion

We defined a multidimensional T2T outcome, with a total of 4 dimensions: disease control, well-being, burden of treatment and beyond skin. As opposed to the other targets for psoriasis, the Belgian T2T outcome comprises physical and mental outcomes; both physician-reported outcomes and PROs. Each dimension is defined for the ideal and acceptable target, making its guidance during treatment decisions specific and unambiguous.

The dimension of disease control includes severity, itch, localization of lesions and the appropriate time window. Severity may be interpreted as absolute (PGA) or relative (ΔPASI). The use of absolute PASI would be challenging in the context of very low PASI scores, although Reich et al.[36] have suggested that absolute PASI2 corresponds best to ΔPASI90. Although itch was included as a VAS tool, erythema, thickness and scaling were omitted and thought to be sufficiently covered by PASI or PGA. The localization of lesions as a separate parameter stems from the different impact it may have on patients,[37] and was therefore opted to be a PRO. The question was reworked by the patients to ensure patient understanding. The rapidity of onset of action of most systemic drugs has been summarized by Nast et al.,[38] yet cannot be implemented in a T2T approach since data on the rapidity for 75% of patients achieving ΔPASI90 are lacking. Therefore, after discussion, the time window of 12 weeks was found most appropriate to counter ambiguity. The use of VAS represents a feasible and patient-friendly instrument to inquire into the patient's disease perception. Combined with DLQI, which is widely known amongst dermatologists, their complementarity realistically reflects the patient's well-being. The remaining dimensions, adverse events and beyond skin ensure a timely and safe disease management with sufficient attention for comorbidities. Since designing a screening and referral system for comorbidities is not within this study's scope, we kindly refer readers to the literature.[29,39–42]

Our target is significantly different from other targets defined previously in the psoriatic field. A European consensus was established in 2011, including a treatment algorithm where continuation was recommended if ΔPASI was 75% or higher, and discouraged if below 50%. If in between, the DLQI score was consulted.[27] Severity categories were defined for BSA, PASI and DLQI, and timing of treatment was divided into an induction and maintenance phase. The Canadian Dermatology Association published 4 years later their vision on treat-to-target, where they outlined a simple treatment goal only including skin clearance or PGA equal to zero, emphasizing its simplicity.[28] Moreover, QoL was defined as 'a satisfied patient'. No other strict guidelines were reported. Comorbidities were considered valid contraindications for treatment options, and frequent assessments were recommended to decide whether optimization or switching of treatment was required. Next, the Psoriasis Group of the Spanish Academy of Dermatology and Venereology published their recommendation on optimal psoriasis care in 2016.[29] They defined the ideal therapeutic target as PASI90 or PGA equal or less than 1, a DLQI of 1 or less, prolonged remission without loss of response and no worsening of comorbidities, distinguishing an initial appropriate response and a minimum efficacy. Noteworthy, biologics were presented as first-line therapy for moderate-to-severe psoriasis at the same level as conventional systemic therapies and phototherapy. Most recently, the Medical Board of the National Psoriasis Foundation established its own ideal therapeutic goal as a Body Surface Area (BSA) of 1% or less in the first 3 months (induction) and during maintenance. An acceptable therapeutic target was defined as BSA of 3% or less, or at least a 75% BSA improvement. In this set-up, patients were consulted who agreed that BSA as a single criterion was sufficient. Moreover, the induction phase was set at 3 months, regardless of treatment option, and a periodic assessment of every 6 months was found most favourable. The differences with our target can be explained by the different methodologies employed in the studies described above, but also the healthcare systems specific to the countries where these studies were performed in. Countries can differ in reimbursement strategies, but also in

accessibility to expertise (e.g. general dermatology versus centres of expertise). Another important aspect is the timing: at the time of this study, several biologics were available, including novel class and biosimilars. Moreover, treat-to-target as a concept increasingly gained attention in the medical community, including dermatology. These aspects presumably influenced the outcome of this study.

The presented T2T outcome is comparable to the target used in the TICOPA study, which also comprised several criteria. To continue treatment, the majority of, but not all, criteria needed to be fulfilled. Likewise, we suggest that our target also aims to fulfil the majority but not all criteria. This in itself allows discussion between the patient and physician to set the goal together in an individualized way, enabling true shared decision-making. However, the TICOPA study struggled with safety issues;[7] therefore, we opt that the safety criterium is mandatory in the Belgian T2T outcome. This allows to reflect complex situations that arise in complex diseases such as psoriasis in a dynamic and realistic way, which was confirmed by both dermatologists and patients during discussions.

Based on discussions and the rationales of respondents, the feasibility and implementation of the T2T outcome was prioritized, enabling its uptake and use in clinical practice. It also serves as an excellent tool to compare clinical trials (cfr. diabetes) in a multidimensional manner. Probably, the tool will primarily be used as a guidance in psoriasis excellence centres. Yet, the tool may serve as a reminder for all physicians that psoriasis is a complex disease with various outcome dimensions to take into account, and may even be used for appropriate documentation for reimbursement as suggested in the literature.[9] Therefore, the tool will raise awareness amongst physicians to act timely and according to the patient's expectations. It may also empower patients to ease communication by clearly defining expectations and rank what's most important to the patient (e.g. itch or full tolerability). Furthermore, T2T can create value in the management of psoriasis as observed in RA: the definition of minimal disease activity has been extensively investigated to achieve the best and most relevant outcome in RA. In psoriasis, the definition of minimal disease activity or remission in psoriasis has not been studied as extensively as in RA and PsA. However, it is primordial to employ an unambiguous, yet holistic definition. Our T2T outcome defines value in a multileveled manner. It takes into consideration the costs and gains that are not observed when only PASI and/or DLQI scores are measured. It provides a first step towards a setting of value-based health care in psoriasis.[43] This study has limitations as data on validity, responsiveness and minimal clinical difference are lacking. Additionally, all dimensions weigh equally in the treatment decision, but may differ in reality: each dimension may vary in importance or contribution to the definition of minimal disease activity, which will require further investigation. Furthermore, the sample sizes were rather limited. However, our study included input from

experienced dermatologists and patients, rendering the score highly relevant for both parties. Moreover, the patients' input relating to satisfaction was recently acknowledged by a T2T study in RA, where evaluation of the patient's satisfaction was found useful to improve the T2T-based disease management.[44] We also used an iterative method to reach consensus anonymously amongst participants. The score in itself was also safeguarded for feasibility requiring minimal infrastructure and experience in real life. Finally, the setting requirements ensure that treatment decisions are taken in an integrated, patient-centred and targeted manner. With this study, we fulfil the 5 principles of T2T as proposed by van Vollenhoven.[9] This outcome is supported by the Belgian psoriasis community whilst compatible with the Belgian reimbursement system. However, we believe the paradigm can guide any dermatologist treating psoriasis, dependent on the means available to attain this. Yet, T2T is a dynamic concept that may evolve over time, depending on the availability of treatments and diagnostic tools, our understanding of disease course at the molecular level, and patients' and physicians' expectations. Experts need to regularly re-evaluate T2T outcomes in the light of recent developments.

The result, a multidimensional target consisting of both physician-reported outcome and PRO, reflects the reality and complexity of psoriasis and therefore guides treatment decisions with sufficient patient involvement. Despite the availability of various biologics, physicians observe a disturbingly high burden of non-response or loss of response.[13–16,45–48] As the introduction of biologics has shifted the golden standard from PASI75 to PASI90 and even PASI100,[49] it is possible to treat patients ambitiously and manage the disease in such a way that proper responses are maintained during treatment. Strict follow-up of clinical response as postulated in treat-to-target can enhance effective use of these expensive drugs in patients with moderate-to-severe psoriasis. Hence, introducing the treat-to-target concept in psoriasis is the next logical step in the management of this chronic skin disease. Future research will be needed to develop a T2T strategy for treatment sequences and to evaluate its efficacy and cost-effectiveness in psoriasis.

Defining a T2T outcome is the first step in tight control management, which is timely and highly relevant for today's psoriasis' challenges.

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Supporting information

Additional Supporting Information may be found in the online version of this article:

Figure S1. Preliminary T2T outcomes presented during Delphi round 3.

File S1. Supplementary materials and methods.

File S2. Delphi questionnaire amongst Belgian dermatology KOL and experts.

File S3. Consensus definition.