British Association of Dermatologists guidelines for the management of adults with delusional infestation 2022

Alia Ahmed,[1,6] Andrew G. Affleck,[2] Janet Angus,[3] Iyas Assalman,[4] Susannah E. Baron,[5] Anthony Bewley,[6,10] Jonathan M. R. Goulding,[7] Richard Jerrom,[7] Peter Lepping,[8] Helen Mortimer,[7] Reena Shah,[9] Ruth E. Taylor,[10] Andrew R. Thompson,[11,12,13] M. Firouz Mohd Mustapa[14] and Lina Manounah [14]

[1] Frimley Health Foundation Trust, Windsor SL4 3DP, UK
[2] Ninewells Hospital, NHS Tayside, Dundee, DD1 9SY, UK
[3] University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, Avon, BS1 3NU, UK
[4] East London NHS Foundation Trust, London, E1 8DE, UK
[5] St John's Institute of Dermatology, Guy's and St Thomas' NHS Foundation Trust, London, SE1 9RT, UK
[6] Barts Health NHS Trust, London, E1 2ES, UK
[7] University Hospitals Birmingham NHS Foundation Trust, Birmingham, B15 2GW, UK
[8] Wrexham Maelor Hospital Liaison Psychiatry, Betsi Cadwaladr University Health Board, Wrexham, LL13 7TD, UK
[9] Central and North West London NHS Foundation Trust, London, NW1 3AX, UK
[10] Queen Mary University of London, London, E1 4NS, UK
[11] Cardiff and Vale University Health Board, Cardiff, CF14 4XW, UK
[12] Cardiff University, Cardiff, Wales, CF10 3AT, UK
[13] British Psychological Society, London, EC2A 4UE, UK
[14] Willan House, British Association of Dermatologists, London W1T 5HQ, UK

ORCID iD: https://orcid.org/0000-0003-1195-0290 (A.B.); https://orcid.org/0000-0002-0385-3186 (A.G.A.); https://orcid.org/0000-0003-1310-9972 (J.M.R.G.); https://orcid.org/0000-0001-6283-4973 (R.J.); https://orcid.org/0000-0002-3251-5370 (P.L.); https://orcid.org/0000-0001-6788-7222 (A.R.T); https://orcid.org/0000-0003-4070-0696 (M.F.M.M.); https://orcid.org/0000-0001-6129-6624 (L.M.)

Corresponding author: Alia Ahmed dr.alia.ahmed@nhs.net, guidelines@bad.org.uk

Produced in 2022 by the British Association of Dermatologists

Key words: delusional infestation, DI, delusional parasitosis, DP, antipsychotic, GRADE, systematic review, guidelines, management, treatment

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NICE has renewed accreditation of the process used by the British Association of Dermatologists to produce clinical guidelines. The renewed accreditation is valid until 31 May 2026 and applies to guidance produced using the processes described in the updated guidance for writing a British Association of Dermatologists clinical guideline – the adoption of the GRADE methodology 2016. The original accreditation term began on 12 May 2010. More information on accreditation can be viewed at www.nice.org.uk/accreditation .

Footnote: This is a guideline prepared for the British Association of Dermatologists (BAD) Clinical Standards Unit, which includes the Therapy & Guidelines Sub-committee. Members of the Clinical Standards Unit that have been involved are: NJ Levell [Chairman Therapy & Guidelines Sub-

committee], B McDonald, SL Chua, A Bardhan, G Petrof, P Laws, A Daunton, H Frow, I Nasr, M Hashme [Information Scientist], LS Exton [Senior BAD Guideline Research Fellow], AM Constantin [BAD Guideline Research Fellow], L Manounah [BAD Guideline Research Fellow], MF Mohd Mustapa [BAD Director of Clinical Standards].

1.0 PURPOSE AND SCOPE

The overall objective of the guideline is to provide up-to-date, evidence-based recommendations for the management of delusional infestation (DI) in adults. The document aims to:

- offer an appraisal of all relevant literature up to 9th December 2020, focusing on any key developments
- address important, practical clinical questions relating to the primary guideline objective
- provide guideline recommendations and if appropriate research recommendations.

The guideline is presented as a detailed review with highlighted recommendations for practical use in dermatology clinics (see section 3.0), in addition to a Patient Information Leaflet (PIL; available on the BAD website, https://www.skinhealthinfo.org.uk/a-z-conditions-treatments/) and a PowerPoint presentation on 'Communication skills when seeing a patient with delusional infestation' (see Supporting information).

2.0 METHODOLOGY

This set of guidelines has been developed using the BAD's recommended methodology[1] with reference to the Appraisal of Guidelines Research and Evaluation (AGREE II) instrument [www.agreetrust.org][2] and the Grading of Recommendations Assessment, Development and Evaluation (GRADE).[3] Recommendations were developed for implementation in the United Kingdom (UK) National Health Service (NHS).

The guideline development group (GDG) consisted of seven consultant dermatologists, three consultant psychiatrists, three clinical psychologists, three patient representatives and a technical team (consisting of an information scientist, a guideline research fellow and a project manager providing methodological and technical support). The GDG established one systematic review question pertinent to the scope of the guideline (Appendix A; see Supporting Information) and a set of outcome measures of importance to patients, ranked according to the GRADE methodology (see section 2.1).

A systematic literature search of PubMed, MEDLINE, EMBASE, Cochrane and PsycInfo databases was conducted to identify key articles on DI up to 9th December 2020; search terms and the search strategy are detailed in the Supporting Information (Appendix J). Additional references relevant to the topic were also isolated from citations in reviewed literature. The evidence from included studies was graded according to the GRADE system (high, moderate, low or very low certainty). The recommendations are based on evidence drawn from systematic reviews of the literature pertaining to the clinical questions identified; summary of included studies (Appendix C), narrative findings for non-comparative studies (Appendix E), tables Linking the Evidence To the Recommendations (LETR) (Appendix B), PRISMA flow diagram (Appendix F) and list of excluded studies (Appendix H) are detailed in the supplementary information. The strength of recommendation is expressed by the wording and symbols as shown in Table 1.

Table 1: Strength of recommendation rating

Strength	Wording	Symbols	Definition
Strong recommendation *for* the use of an intervention	"Offer" *(or similar, e.g. "Use", "Provide", "Take", "Investigate", etc.)*	↑↑	Benefits of the intervention outweigh the risks; most patients would choose the intervention whilst only a small proportion would not; for clinicians, most of their patients would receive the intervention; for policy makers, it would be a useful performance indicator.
Weak recommendation *for* the use of an intervention	"Consider"	↑	Risks and benefits of the intervention are finely balanced; most patients would choose the intervention, but many would not; clinicians would need to consider the pros and cons for the patient in the context of the evidence; for policy makers it would be a poor performance indicator where variability in practice is expected.
No recommendation		Θ	Insufficient evidence to support any recommendation.
Strong recommendation *against* the use of an intervention	"Do not offer"	↓↓	Risks of the intervention outweigh the benefits; most patients would *not* choose the intervention whilst only a small proportion would; for clinicians, most of their patients would *not* receive the intervention.

2.1 Clinical questions and outcomes

The GDG established one clinical question pertinent to the scope of the guideline (Appendix A; see supporting information).

Systematic review question

In people with DI what is the clinical effectiveness and safety of interventions compared with each other, placebo, or no treatment? See Appendix A (Supporting Information) for further information.

The GDG also established a set of outcome measures of importance to patients for each clinical question, which were agreed by the patient representatives and ranked according to the GRADE methodology.[4] Outcomes ranked 7, 8, and 9 are critical for decision making; those ranked 4, 5, and 6 are important, but not critical for decision making; those ranked 1,2, and 3 are least important for decision making:

Critical

- Full or no remission (9)
- Severe side effects from treatment (8)
- Quality of life, e.g. improvement in dermatology life quality index (DLQI) scores (8)

- Changes in psychological, social, or functional well-being (e.g. changes in objective measures of depression and anxiety) (8)
- Relapse (8)
- Physician's global assessment, e.g. Clinical Global Impression (CGI) (7)
- Patient's self-reported assessment (7)
- Partial remission (7)
- Duration of remission following treatment cessation (7)

Important

- Mild adverse effects (6)

3.0 SUMMARY OF RECOMMENDATIONS

The following recommendations and ratings were agreed upon unanimously by the core members of the GDG and patient representatives. No reliable data on children with DI were identified, therefore, all recommendations are applicable to adults only. For further information on the wording used for recommendations and strength of recommendation ratings see Table 1 in section 2.0. The GDG is aware of the lack of high-certainty evidence for these recommendations, therefore strong recommendations with an asterisk (*) are based on available evidence and/or consensus within the GDG and specialist experience. Good practice point (GPP) recommendations are derived from informal expert consensus.

The GDG considered the evidence and provided recommendations in the context of clinical practice within the United Kingdom's National Health Service (NHS). However, the GDG acknowledged that some recommended interventions may not be widely available. In the case of psychological interventions, the GDG considered there is a very strong case this should be widely available; however, they acknowledged that this may not be practical for many NHS centres at the time of publication. Please refer to the discussion in the LETR (Appendix B; see Supporting Information) for further details.

INITIAL PRESENTATION

R1 (GPP) Engage with adults with suspected DI and their family/carers, where appropriate, early in the management pathway.

R2 (GPP) Undertake a full history of adults with suspected DI including a psychiatric, medical, psychosocial, travel and substance use history.

R3 (GPP) Undertake a full physical examination of adults with suspected DI and consider further systemic examination (e.g. neurological) according to symptoms.

R4 (GPP) Undertake a thorough visual inspection (naked eye or with a magnifying glass) of samples provided by adults with suspected DI. Ideally, microscopic examination should be performed by a UKAS-accredited laboratory and additional bacteriological or fungal culture should be considered, where appropriate.

INVESTIGATIONS AND ASSESSMENT

R5 (GPP) Undertake appropriate investigations to screen for an underlying organic condition (see section 7.0) in adults with suspected DI and treat where necessary.

R6 (GPP) Undertake a urine toxicology screen (looking specifically for substance use) in adults with suspected DI.

R7 (GPP) Consider using validated tools to screen adults with suspected DI for identification of co-morbid and secondary forms of psychological distress, e.g. anxiety (GAD-7),[5] depression (e.g. PHQ-9).[6] Screening tools may also be useful in identifying secondary impact on wellbeing and QoL (e.g. DLQI).[7]

R8 (GPP) Assess the risk of harm an adult with suspected DI poses to self (especially suicidal behaviour) and/or others; consider referral to appropriate services where applicable.

MANAGEMENT

R9 (GPP) Allow at least a 45-minute appointment for new and 30 minutes for subsequent follow-up appointments for adults with DI.

R10 (↑↑) Offer* early referral to a specialist psychodermatology clinic, where available, to adults with DI.

R11 (↑↑) Offer* psychiatric and psychological support in addition to dermatological treatment to adults with DI if acceptable to the patient.

R12 (↑↑) Offer* antipsychotic medication early in the management of adults with DI and tailor the choice of treatment according to patient characteristics. See section 5.0 and Appendix B (Supporting Information).

R13 (↑↑) Offer* treatment for psychological comorbidities such as anxiety and depression in adults with DI.

R14 (GPP) In cases of shared DI, treat the index case as a priority with oral and topical treatment as appropriate. Treat the adults with shared beliefs with topical preparations and assess the need for providing psychological treatment and support if appropriate (e.g. in the context of anxiety and/or depression).

FOLLOW-UP

R15 (GPP) Undertake regular review in adults with DI to evaluate the response to treatment and side effect profile.

R16 (↑) Consider objective measures of adherence in adults with DI (see section 5.2).

R17 (GPP) Proactive communication with all healthcare professionals involved in treating adults with DI is essential to ensure that patients do not receive conflicting messages from different care providers.

R18 (GPP) Offer treatment for at least 1 year after symptoms have resolved in adults with DI and restart treatment if symptoms recur following cessation of treatment.

R19 (GPP) Ensure continuity of care where possible under the same lead clinician with appropriate experience and/or multidisciplinary team throughout treatment of adults with DI.

List of future research recommendations

The following list outlines future research recommendations (FRRs) for children, young people, and adults with DI.

FRR1 Epidemiological studies to assess the incidence and prevalence of DI in people within the UK.

FRR2 Further robust evidence with regard to pharmacological intervention for DI – split into primary and secondary DI:

- efficacy
- dosage
- safety
- length of treatment
- recurrence
- setting in which treatment is prescribed and monitored (e.g. general dermatology clinic, specialised psychodermatology clinic, general practice).

Prospective, randomized controlled trials of pharmacological interventions for people with primary and secondary DI, investigating treatment safety, efficacy, dosage, and duration, factoring in disease recurrence and clinical setting in which treatment is provided.

FRR3 Investigation of the effectiveness of psychological therapies in people with DI.

FRR4 Qualitative research to investigate the patient/carer experience of living with DI.

FRR5 Repeat survey to identify the number of cases of DI seen by dermatologists and/or other specialist centres over a 1-year period in the UK to update data on current demand.

FRR6 A survey to assess attitudes to and confidence with antipsychotic prescribing for DI amongst UK dermatologists.

FRR7 Studies to further investigate the aetiopathogenesis and underlying psychosocial factors of DI.

FRR8 A cost-effectiveness analysis of treatments for people with DI within a UK setting.

4.0 ALGORITHM

The recommendations, discussions in the LETR (Appendix B; see Supporting Information) and consensus specialist experience were used to inform the algorithm/pathway of care (Figure 1).

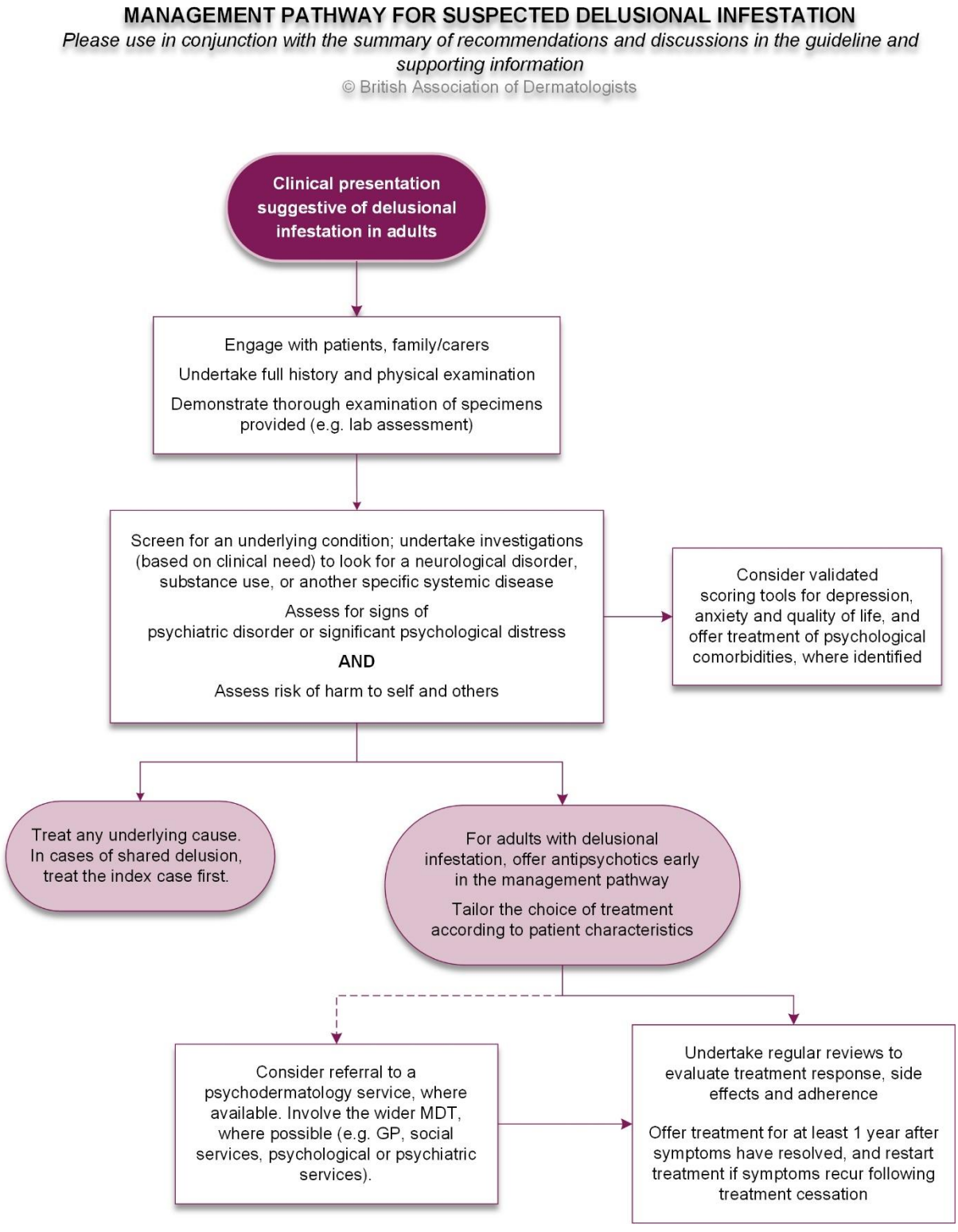

Figure 1. Management pathway for adults with suspected DI. MDT, multidisciplinary team; GP, General Practice.

5.0 ANTIPSYCHOTICS

5.1 Suggestion for antipsychotic treatment

First-line recommendations, in alphabetical order, include amisulpride, olanzapine, and risperidone (Appendix B; see Supporting Information for the rationale for not choosing one antipsychotic drug over another). These medications have the most available evidence for efficacy and a better side-effect profile than first-generation antipsychotics, especially in the elderly. In DI, the evidence suggests that low doses of antipsychotics are effective. Furthermore, they are associated with fewer side effects, as antipsychotic side effects are dose-dependent.

Table 2: Second generation antipsychotics (SGAs) used for the treatment of DI[a]

Drug	Dose	Side effects	Notes
Amisulpride	200 - 400 mg	Can increase prolactin level Minor weight gain or dyslipidaemia	Suggest dose splitting Renally excreted, consider dose reduction if GFR reduced.
Olanzapine	2.5 - 10 mg	Sedating Potential for significant weight gain Risk of metabolic syndrome Risk of dyslipidaemias Usually no increased prolactin if dose < 20 mg Some anticholinergic effect Low risk akathisia	Increased risk cardiovascular events in patients with dementia
Risperidone	0.5 - 3 mg	Some sedation Increases prolactin level Some anticholinergic effect Moderate effect on weight gain	Increased risk cardiovascular events in patients with dementia
Quetiapine[b]	50 - 300 mg	Sedating Usually no increased prolactin Some anticholinergic effect Weight gain Low risk of akathisia	Increased risk cardiovascular events in patients with dementia, but suggested this effect is less than with other SGAs Less risk extrapyramidal symptoms (so appropriate for patients with Parkinson's disease)
Aripiprazole[b]	5 - 15 mg	Minor weight gain or dyslipidaemia	Increased risk cardiovascular events in patients with dementia

[a] Reproduced and adapted from Maudsley Prescribing Guidelines in Psychiatry 13th Edition (2018)[8]
[b] Quetiapine and aripiprazole are second-line recommendations. They are less effective than amisulpride, olanzapine and risperidone in schizophrenia.
GFR, glomerular filtration rate; SGA, second-generation antipsychotics

5.2 Using antipsychotic medications

It is recommended[8] to screen for risk factors that make experiencing side effects of antipsychotic treatment more likely:

- female
- cardiovascular disease
- liver disease
- poor nutrition
- concomitant treatment with drugs that have cardiac side effects or pharmacokinetic interactions with antipsychotics.

Monitoring is recommended for antipsychotic medication in accordance with the medication's likely side effects. We suggest the use of the monitoring guidance in the British National Formulary (BNF), which outlines potential side effects for each medication. Please also refer to the latest BNF version for rare cardiac adverse events and for up-to-date recommendations. Current guidelines on monitoring (such as those produced by the Royal College of Psychiatrists) usually refer to patients with schizophrenia and long-term use of antipsychotics. In DI, antipsychotic use is usually limited to a year after the symptoms resolved, and to small doses, which reduces the risk of serious and long-term side effects. Depending on the choice of drug, possible monitoring[9,10] to consider includes:

- Electrocardiogram (ECG) to monitor for QTc prolongation.
- Weight, BMI, lipids, blood pressure and plasma glucose to monitor for metabolic syndrome and possible weight gain.
- Thyroid, renal and liver function to exclude secondary causes of DI and to identify potential organ impairment that would require a reduced dose of medication.
- Full blood count and C-Reactive Protein (CRP) to exclude chronic infections (high eosinophil counts are seen in true infestations).
- Prolactin levels can be useful to estimate adherence to some antipsychotics such as risperidone because they usually increase with medication use.
- Measuring serum levels of antipsychotic medications as an indicator of adherence (this will depend on the availability of such tests in the treating centre).

Treatment with antipsychotics is recommended until symptoms have resolved, and then continue up to 1-year before slow dose reduction. If the symptoms return, then up-titration to the previous most efficacious dose is suggested.

As a general principle the lowest possible dose should be used. Experience suggests that lower doses than the usual minimum effective doses found in schizophrenia can be effective in DI.

If it is felt that prescription and monitoring of antipsychotics is outside of the scope of practice of the dermatologist, please consider discussing with the patient's GP or the local psychiatric service or ideally, if available, a tertiary-level psychodermatology service.

6.0 INTRODUCTION

6.1 Definition

Delusional infestation (DI), previously known as delusional parasitosis or Ekbom's syndrome, [11,12] is the fixed false belief of pathogenic infestation of the skin or body, without objective medical evidence.[13] The alleged pathogen can be a living organism, or an inanimate object (e.g. fibres, threads). DI is a debilitating condition and causes significant suffering to the patient and their loved ones.[14,15]

The symptoms of DI often impact work, relationships and quality of life, thus constituting a high disease burden.[12,15] Patients prefer to seek consultation with general practitioners and specialist physicians (e.g. dermatologists and infectious disease specialists) rather than psychiatric advice.[13] Confidence of general dermatologists in managing DI is very variable.[16]

DI has two main forms, primary (a monosymptomatic hypochondriacal psychosis characterised by delusions, somatosensory abnormality, behavioural alteration, cognitive distortions) and secondary symptoms (caused by another defined organic or pre-existing psychiatric disorder, or by substance use)[12,14,15,17-19] The primary form is without definite cause or underlying illness, and according to the International Classification of Diseases (ICD-10) and Diagnostic and Statistical Manual of Mental Disorders (DSM-5), meets the criteria for a persistent delusional disorder (ICD-10) or a delusional disorder of somatic type.[12,20] The delusion should be present for greater than one month without a diagnosis of schizophrenia,[21] the patient should be able to function despite the delusion, the duration of the delusion should be longer than the duration of any mood changes and the delusion should not be secondary to organic pathology or substance use (DSM-5). It is important to remember that the intensity and content of the delusional belief may be dynamic (variable over time), and between affected individuals.[22]

6.2 Incidence and aetiology

There is a lack of epidemiological data to describe the incidence of DI, despite it being the most common monosymptomatic delusional disorder presenting to dermatologists.[23] Reports of incidence include: 1.9 in 100,000 person years, [24] 80 cases per million in private practice,[25] 50 cases per million in public health services[25] and 7 in 10,000 psychiatric admissions.[26] Mean disease duration has been reported as 3.13 years, but can last from days to over 3 decades.[25,27] Mean duration of untreated psychosis (DUP) at presentation has been reported as 3.4 years with better outcomes for those with shorter DUP.[28] Other population characteristics include a female predominance in patients over 50 years old (3:1),[29] equal sex incidence is reported in patients less than 50 years old.[30] It is suggested that females have a longer disease duration than males and the condition is reported more commonly in the populations identifying as white ethnicity.[31] These statistics should be interpreted with caution however, as DI is likely under-reported and these results have not been replicated. The aetiology of primary DI is uncertain and may include genetic susceptibility, psychological variables, life events, activation of the dopamine pathway and an aberrant itch pathway.[13,32] Frontal, temporal and parietal cortex as well as dorsal striatum and thalamic dysfunction or structural damage have been described in people with DI.[12,33-39] These areas correspond to visuospatial control, self-awareness/representation, judgement, sensation and learning that can lead to errors of probabilistic reasoning.[12,33-39] Thus, damage may lead to the development of delusional beliefs, visual and tactile hallucinations.[12,33-39] Disordered reasoning and judgment have also been described in DI patients.[40] The aetiology of secondary DI may be via substance use, other medications and other underlying disease (e.g. multiple sclerosis and other neurological conditions).[41,42] A poorer prognosis has been reported in patients with chronic pain and in those with a psychiatric comorbidity.[16]

7.0 DIAGNOSIS AND INVESTIGATION

Patients are often highly distressed and describe themselves as being infested with a living or non-living pathogen manifesting as pruritus, crawling or biting sensations and resultant skin changes (e.g. excoriation, dermatitis, erosions).[15] Patients commonly describe sensations in their ears or eyes,

feelings of living pathogens in their intestines or stool, or beliefs of systemic infestation that can affect any or all organs. People with DI may also feel their immediate environment has been infested and have engaged in decontamination attempts to rid them of the alleged pathogen.[12] The initial exposure is often recollected, for example, exposure to poor hygiene or contact with an infested environment/person.[15]

Often people with DI will have gone to great lengths to isolate the source of infestation and will provide specimens for analysis (the 'specimen sign').[12,13] Past or current psychiatric comorbidities are reported in up to 80% of people with DI, including depression anxiety and substance use.[43-46] In addition, patients with DI may experience poor quality of life due to their condition (e.g. restricting social activity in fear of infesting others, spending excessive time performing cleansing rituals, economic impact of having DI), and the cumulative impact being underestimated.[47]

People with DI may have concerns about infesting others around them (e.g. family or work colleagues), or present with shared fear of infestation with another close contact, such as a spouse (folie a deux), a child or even a pet (DI by proxy).[12,48] Importantly, this may lead clinicians to have safety concerns about the wellbeing of children or vulnerable adults associated with people with DI.[49,50] Where there are concerns identified, a referral to appropriate safeguarding services may be necessary.

Differential diagnoses are medical, psychiatric or substance-related. They include true infestations, substance use, neurological disorders, pruritus of systemic disease, schizophrenia spectrum disorders, dementia, depression and other psychiatric conditions, as well as side effects of prescribed medications (e.g. antibiotics, dopaminergic medications, such as antipsychotic or anti-Parkinsonian medication).[13,15] It is important to rule out organic disease as DI is a diagnosis of exclusion. Reasonable investigations depend on the clinical picture and may include a pruritus screen,[9] dementia screen,[10] HIV test and infectious disease screen, serological markers of inflammation, glycated haemoglobin, microbiological analysis of specimens, urine drug screen, thyroid function, and computerized tomography (CT) or magnetic resonance imaging (MRI) brain scans to rule out space occupying lesions and vascular oriented pathology (see R5). The role of skin biopsy is debated. A previous study did not find any pathology on skin biopsies analysed from people with DI from 2001-7.[44]

8.0 RECOMMENDED AUDIT POINTS

In the last 20 consecutive adult patients[†] is there clear documentation of:

- diagnosis and/or presenting symptoms
- assessment of severity of mental health impact (use of objective measures, where possible)
- assessment of the risk the patient poses to self and others
- duration of untreated illness
- discussion with the patient about their treatment plan
- initiation of antipsychotics
- duration of antipsychotic treatment.

[†] The audit recommendation of 20 cases per department is to reduce variation in the results due to a single patient and allow benchmarking between different units. However, departments unable to achieve this recommendation may choose to audit all cases seen in the preceding 12 months.

9.0 STAKEHOLDER INVOLVEMENT AND PEER REVIEW

The draft document was made available to the BAD membership, the Royal college of Psychiatrists (RCPsych), British Psychological Society (BPS; health psychology and clinical psychology divisions), British Infection Association, Primary Care Dermatology (PCDS), and Royal College of General practitioners (RCGP) for comments, which were actively considered by the GDG, and the guideline was updated, where appropriate. Following further review, the finalized version was sent for peer-review by the Clinical Standards Unit of the BAD, made up of the Therapy & Guidelines sub-committee, prior to submission for publication.

10.0 LIMITATIONS OF THE GUIDELINE

This document has been prepared on behalf of the BAD and is based on the best data available when the document was prepared. It is recognized that under certain conditions it may be necessary to deviate from the guidelines and that the results of future studies may require some of the recommendations herein to be changed. Failure to adhere to these guidelines should not necessarily be considered negligent, nor should adherence to these recommendations constitute a defence against a claim of negligence. The review was limited to publications in English and German [a member of the GDG (PL) was able to translate German articles to English]; this was a pragmatic decision, but the authors recognize this may exclude some important information published in other languages. It is acknowledged that specialities other than dermatology, such as Tropical medicine and infectious diseases, may also reasonably develop joint DI services with dermatology and psychiatry and may want to use these guidelines, which should not be seen as exclusive to dermatology.

11.0 PLANS FOR GUIDELINE REVISION

The proposed revision date for this set of recommendations is scheduled for 2026; where necessary, important interim changes will be updated on the BAD website.

ACKNOWLEDGEMENTS

We are very grateful to the three patient representatives (all wished to remain anonymous) for their input in the ranking of the outcomes, reviewing the evidence, formulating the recommendations and contributing to the 'Patient values and preferences' section (Appendix B; see Supporting Information), Miss Alina M Constantin (BAD Guideline Research Fellow) for assisting with the final stages, as well as those who commented on the draft during the consultation period. We also thank Professor Stephen Bertel Squire from the Liverpool School of Tropical Medicine for his input.

DECLARATIONS OF INTEREST

AA has provided ad hoc consultancy for Abbvie, Almirall, Leo Pharma, Proctor & Gamble, Neutrogena, Nivea, Novartis, Sanofi, UCB, Unilever (non-specific); positions of interest include Trial Generation and Prioritization Panel (UK Dermatology Clinical Trials Networks), Executive committee Member Psychodermatology UK (non-specific). **AGA** has received honoraria from pharmaceutical advisory boards and funding to attend dermatology meetings in Europe and the USA from Leo Pharma, Galderma, Celgene and Abbvie. **AT** has received workshop fees from Novartis (non-specific) and UCB (non-specific); scientific advisor for the vitiligo society; trustee for changing faces, Psychological Advisor to the All-Party parliamentary Group on Skin. **AB** has provided ad hoc consultancy with Abbvie, Almirall, Celgene, Novartis, Galderma, Leo Pharma, Janssen, Lilly, and Thornton and Ross (non-specific); an advisor to the ichthyosis support group, Changing Faces, psoriasis association, National

Eczema Society (non-specific); secretary of European Society for Dermatology and Psychiatry (non-specific); chair for Psychodermatology UK (non-specific); medical advisor to the ichthyosis support group, vitiligo society, and psoriasis association (non-specific). **SB** has taken part in advisory boards for Abbvie, Novartis and Sanofi, received speaker honoraria for educational lectures by La Roche Posay and Janssen; as a Secretary of Psychodermatology UK obtained educational sponsorship for annual meeting from Novartis, Janssen, Abbvie, Thornton-Ross, Galderma, Leo, Celgene, Dermal, Johnson and Johnson, Sanofi, Lilly, Almirall, L'Oreal. **JMRG** has received speaker honoraria from Lilly and Novartis to deliver generic educational lectures on psychodermatology (non-specific); consultancy work for Lilly to take part in expert advisory board developing an online training initiative in psychodermatology (non-specific); member of Psychodermatology UK executive committee (non-specific). **RS** is a consultant for Dove, Unilever, a spokesperson for a Leo Pharma project, workshop fees from Novartis (non-specific); has provided consultancy to Pegasus, Leo Pharma and Exorex (non-specific); advisor to the National Eczema Society (non-specific); psychologist for the Psychodermatology UK executive committee (specific). **PL**, **RET**, **HM**, **IA**, **JA**, **RJ**, **MFMM** and **LM** had no interests to declare.

Supporting information

Additional supporting Information may be found in the online version of the article at the publisher's website:

Appendix A: Systematic review protocol

Appendix B: Linking Evidence To Recommendations (LETR)

Appendix C: Summary of included studies

Appendix D: Narrative findings from comparative studies with no extractable data

Appendix E: Narrative findings from non-comparative studies

Appendix F: PRISMA diagram – study selection

Appendix G: AMSTAR 2

Appendix H: Papers excluded from quantitative analysis

Appendix I: Methodology

Appendix J: Search strategy

Appendix K: Audit standards, data items and data collection

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