

Malnutrition

ADDRESSING A POTENTIAL FORGOTTEN FACTOR IN OPTIMISING OUTCOMES

Samantha Cudby, Practice Pharmacist, Addlestone and Dr Anne Holdoway, Consultant Dietitian, look at the effects of malnutrition on key patient groups, in particular the frail older person, and consider how Practice Pharmacists can work with other members of the disciplinary team to address this often-forgotten factor

Working with the Primary Care Pharmacy Association (PCPA) to support Malnutrition Month



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Malnutrition- specifically undernutrition- is more than just weight loss. It is a state in which a deficiency of energy, protein, and other nutrients causes adverse effects on the body, its function, and clinical outcomes¹.

WHY MALNUTRITION MATTERS

It is estimated that around one in ten people over the age of 65 years are malnourished or are at risk of malnutrition². Equally patients with long-term conditions are at risk of malnutrition³ due to the adverse effect of the disease on the body or the effect of treatments on appetite and/or the ability to eat and drink.

Left untreated malnutrition results in increasing healthcare costs of a magnitude three to four times greater than that of managing a nourished individual (health and social care costs of a malnourished patient are estimated to be £7,408 as opposed to £2,155 for a non-malnourished patient)⁴.

With 3 million affected at any one time, of whom 93% are in the community⁵, practice pharmacists can play a key role in identifying malnutrition, in giving first line advice and / or referring on to other members of the multidisciplinary team, such as dietitians.

As the symptoms of malnutrition share similarities with side effects of medications, and metabolism of drugs is affected by body mass and physiological status, integrating nutrition screening into polypharmacy reviews can enable pharmacists to identify malnutrition, gain a more holistic view of patient's health needs and achieve better outcomes.

Although dietitians are increasingly working as part of the primary care team and patients at risk of malnutrition might benefit from seeing a dietitian, there are currently insufficient dietitians available to provide dietary advice for all individuals affected. Pharmacists are in an excellent position to deliver the first tier of malnutrition management using evidence-based guidance, national and local resources, and referring or escalating care to dietitians for those most likely to benefit from dietetic expertise.

Taking early action through screening and being aware of those at risk can prevent the downward spiral of malnutrition and prevent the increase in health and social care costs.

Table 1 on the following page: PUTTING MALNUTRITION INTO CONTEXT gives examples of individuals at high risk and the consequences and cost of malnutrition associated with overlooking this aspect of care.

TABLE 1: PUTTING MALNUTRITION INTO CONTEXT

High risk groups include those with⁷:

- Chronic disease: chronic obstructive pulmonary disease (COPD), cancer, gastrointestinal disease, renal or liver disease and inflammatory conditions such as rheumatoid arthritis, inflammatory bowel disease
- Progressive neurological disease: dementia, Parkinson's disease, motor neurone disease (MND)
- Acute illness: where adequate food has not been consumed for more than 5 days (more commonly seen in a hospital than a community setting)
- Debility: frailty, immobility, old age, depression, recent discharge from hospital
- Social issues: poor support, housebound, difficulty obtaining or preparing food
- Rehabilitation: after stroke, injury, cancer treatment
- End of Life/Palliative Care in whom dietary advice requires adjustment according to phase of illness

The clinical consequences of malnutrition include:

- impaired immune response⁸
- reduced muscle strength⁸ and frailty^{9,10}
- impaired wound healing⁸
- increased falls risk^{11,12}
- impaired recovery from illness and surgery⁸
- impaired psycho-social function⁸
- poorer clinical outcomes e.g. higher mortality⁸

Cost implications

Malnourished individuals have⁴:

- more hospital admissions/ readmissions
- longer length of hospital stay
- greater primary care healthcare needs e.g. clinician visits, care at home, antibiotics

On a national basis, it is estimated that the increased health and social care needs associated with untreated malnutrition exceed £23 billion a year². This represents 15% of the expenditure on health and social care and corresponds to approximately £370 per capita of the population².

Health economic analysis by NIHR and BAPEN shows that identifying and treating malnutrition according to the NICE guidance (CG32/QS24) can save at least ~£123,530 per 100,000 people⁴. Expenditure on treatments and strategies to identify and manage malnutrition is a very small proportion of the overall cost (<2.5%)⁴.

HOW TACKLING MALNUTRITION CAN ENHANCE THE CARE PHARMACISTS PROVIDE

As part of the government's ambitions to achieve optimisation of medicine use, practice pharmacists now play a pivotal role in undertaking polypharmacy reviews in older people and those with multiple health conditions. Whilst it is accepted that older age and disease can result in physiological changes which in turn can alter the pharmacokinetic and pharmacodynamic characteristics of many medicines⁶, so can malnutrition. An increased awareness of malnutrition by pharmacists could lead to improved screening, actions and outcomes in key patient groups (Table 1).

MALNUTRITION AND FRAILTY

Frailty is a distinct health state where a minor event can trigger major changes in health from which the patient may fail to return to their previous level of health¹³.

Whilst frailty is frequently associated with ageing, it can arise with many progressive long-term conditions¹⁴⁻¹⁶. Unintended weight loss, slow gait speed, low energy expenditure, self-reported exhaustion and poor grip

strength are all phenotypically associated with frailty but are equally present in malnutrition. In fact, malnutrition is present in 64% of frail older adults (compared with only 2% of fit older adults)¹⁷. Despite its prevalence and links to frailty, malnutrition continues to be under-reported and under-treated in primary care². This may be for two reasons. First, weight loss is mistakenly perceived as an inevitable part of ageing or disease. Second, with an increasing prevalence of obesity, malnutrition arising from unintentional weight loss can be masked by an initially high body mass index (BMI). Checking the amount and rate of unintentional weight loss is paramount in these patients. (See page 4 for information on screening).

Inappropriate polypharmacy may worsen underlying malnutrition as side-effects of medications such as poor appetite, nausea, vomiting, constipation, diarrhoea, or low mood contribute to a diminished food intake. Weakness associated with loss of weight and frailty can have a further detrimental effect on nutritional status by compounding issues that impact on the patient's ability to access and prepare food, such as dexterity, physical function and balance.

Neither frailty nor malnutrition are inevitable and both can respond to specific modalities such as nutrition and review of medicines¹⁸.

FRAILTY, MALNUTRITION, MUSCLE MASS AND PROTEIN: INTER-RELATIONSHIPS

Frailty and malnutrition can arise as a result of a reduced protein intake combined with an insufficient rate of muscle synthesis¹⁹. Requirements for protein are higher in older people for a variety of reasons, including but not limited to the increased demands created by disease and the reduced ability to synthesise muscle¹⁹.

To add to this appetite often diminishes as we age. Research shows that protein intakes among older adults, those who are unwell and those who are malnourished or at risk of malnutrition, are often inadequate^{20,21}. Insufficient protein (and energy) contribute to loss of muscle with a resulting decline in immunity, strength and the ability to perform everyday activities²⁰. In turn this can lead to a loss of independence, falls, and even mortality¹⁹. Increasing protein intake in frail, older people combined with physical activity/resistance training can slow or reverse the decline in muscle mass²².

THE IMPACT OF INFECTION AND DISEASE

Whilst the COVID-19 pandemic has been exceptional, it has highlighted how infections and disease can exacerbate malnutrition in pre-existing under-nourished patients but also develop rapidly in those previously of a healthy weight and of a good nutritional state.

Patients are at risk of malnutrition as a result of elevated nutritional requirements associated with infection occurring at a time when appetite is diminished²³. NHS England has emphasised that nutrition is likely to be a vital part of the recovery process for patients affected by a severe COVID-19 infection²⁴. Nutritional screening and the provision of good nutritional care during this pandemic has been and remains important. Additionally, amongst older patients and those with chronic diseases, malnutrition may impair the immune response⁷ and further worsen COVID-19 severity. For individuals who have required hospital care including, for example, respiratory support, ongoing nutritional rehabilitation is likely to be required.

COVID-19 can have a detrimental effect on dietary intake. There are a host of reasons why:

- Respiratory issues observed in severe cases of COVID-19 have a similar presentation to infective exacerbations of respiratory diseases such as COPD. Dietary intake can be affected by issues such as coughing and breathlessness, gas trapping, early satiety and a dry mouth that can arise from the use of inhalers and oxygen therapy
- Loss of taste and smell^{25,26} affecting enjoyment and the desire to eat
- An inflammatory response and a rise in body temperature²⁶ which can suppress appetite and alter metabolism, increasing the need for specific nutrients and fluid when intake may be poor²⁷
- Ongoing muscle weakness and fatigue, impacting on a patient's ability to undertake normal activities of daily living, such as shopping and cooking
- Social distancing and self-isolation contributing to:
 - Poor food availability and accessibility for those who struggle to go to the shops
 - Lack of visits from family or friends to provide food, company and feeding assistance
 - Cancellation of social lunch clubs

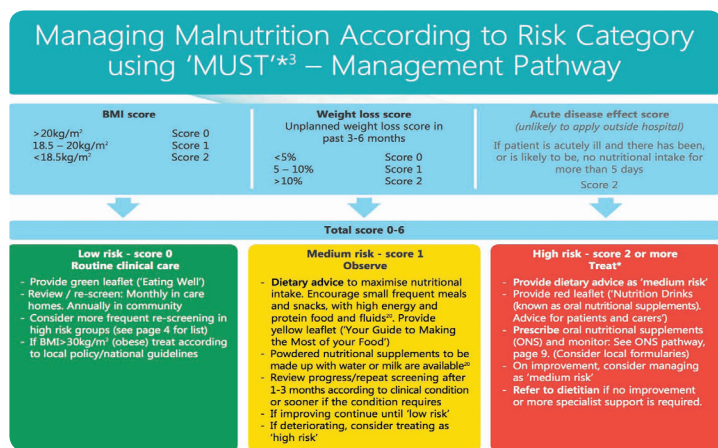
All of these issues can be alleviated or mitigated through dietary advice. Further ideas and information for healthcare professionals and patients on managing nutritional issues associated with the COVID-19 infection can be found at <https://www.malnutritionpathway.co.uk/covid19-community-hcp>

INCORPORATING NUTRITIONAL SCREENING AND MANAGEMENT INTO REVIEWS - A GUIDE FOR PHARMACISTS

Nutritional Screening

NICE CG32 recommends the use of the Malnutrition Universal Screening Tool ('MUST') to identify adults with, or at risk of, malnutrition²⁸. The 'MUST'¹ is a simple five-step process that calculates a patient's overall risk of malnutrition (see Figure 1).

Screening During COVID-19 Epidemic



During the COVID-19 pandemic, healthcare professionals have had to radically change their way of working, in many cases moving to remote consultations. Identifying the risk of malnutrition usually relies on recording current height and weight to calculate BMI (step 1 of 'MUST') and percentage unintentional weight loss over time (step 2 of 'MUST'). For people in the community during the COVID-19 pandemic, if physical measures are not possible it is recommended²⁹ to use:

1. Patient reported values of current weight and height plus previous weight to calculate Step 1 and Step 2 of 'MUST' or
2. A series of subjective criteria to form a clinical impression of an individual's malnutrition risk category (see table 2)

Figure 1: the Malnutrition Universal Screening Tool ('MUST')

*The 'Malnutrition Universal Screening Tool' ('MUST') is used here with the permission of BAPEN (British Association for Parenteral and Enteral Nutrition). For more information and supporting materials see www.bapen.org.uk NB: Healthcare professionals using screening tools should have appropriate skills and training

TABLE 2: SUBJECTIVE CRITERIA TO USE WHEN RECORDING WEIGHT AND HEIGHT ARE NOT POSSIBLE

<p>BMI</p> <ul style="list-style-type: none"> • Clinical impression - thin, acceptable weight, overweight. Obvious wasting (very thin) and obesity (very overweight) can be noted
<p>Unplanned weight loss (particularly relevant in patients with COVID-19)</p> <ul style="list-style-type: none"> • Clothes and/or jewellery have become loose fitting • History of decreased food intake, reduced appetite and/or dysphagia (swallowing problems) over 3-6 months, underlying disease or psycho-social/physical disabilities likely to cause weight loss • COVID-19 infection is very likely to cause unplanned weight loss if food intake is reduced by the effects of the disease and its management e.g. anorexia, breathlessness, impact of management options: sedation, continuous positive airway pressure (CPAP) / non-invasive ventilation (NIV), changes to taste and smell, psychological factors (e.g. anxiety), social restrictions

The following questions can assist in obtaining information to form a clinical impression and help you select the most appropriate dietary advice resources:

- How is your appetite lately? How are you managing with your eating and drinking?
- How would you describe your weight? What is a usual weight for you?
- Do you feel like your weight has changed in the last few weeks or months?
- How are your clothes and jewellery fitting? Do they feel like they fit differently to usual?

The subjective criteria can be used to estimate a malnutrition risk category (low, medium or high) based on a clinical evaluation.

WHAT CAN PHARMACISTS DO TO HELP TACKLE THIS PUBLIC HEALTH PROBLEM?

Care pathways

To support pharmacists identify malnutrition and take appropriate action in the community the 'Managing Adult Malnutrition in the Community' national consensus panel have developed pathways of care for use by the multidisciplinary healthcare team⁷. The pathway, often referred to as the Malnutrition Pathway: <https://www.malnutritionpathway.co.uk> and resources, act as a framework and can be helpful in providing an appropriate malnutrition care pathway in your practice. Actions for consideration might be:

- linking the Malnutrition Pathway and resources to your computer system if there are no local pathways in place. 'MUST' screening involving weight, height, weight loss score and acute disease effect score can be linked to the relevant malnutrition pathway advice and patient materials according to low, medium or high risk
- influencing adoption and implementation in conjunction with guidance from local dietitians
- introducing nutritional screening in a timely and efficient manner - for example can it be carried out at Medicines Use Reviews, an annual review or older person's health check? Practice pharmacists could work in conjunction with dietetics to encourage practices to integrate nutritional templates for specific patient groups, perhaps implementing initially in a smaller patient group, such as a CCG priority group like frail older people
- carry out audits in practice to ensure patients are reviewed and prescriptions for oral nutritional supplements (ONS) remain appropriate

Where possible, liaise with local dietitians / dietetic department about the potential training for support staff to carry out malnutrition screening and appropriately deal with requests for ONS.

Taking action according to risk of malnutrition

Once patients have been screened and malnutrition risk has been identified, management/treatment strategies need to be put in place. In most cases the malnutrition can be managed using first line dietary advice to optimise food intake with ONS where necessary.

How Pharmacists can support dietary advice

Patients at medium risk of malnutrition ('MUST' Score 1) should be given advice on optimising food intake (including food fortification). The malnutrition pathway leaflet 'Your Guide to Making the Most of your Food': http://www.malnutritionpathway.co.uk/library/pleaflet_yellow.pdf provides some simple ideas on how patients can get the most nutrition from the food they are eating. It is important that patients understand the importance of adopting such dietary advice, particularly if they have historically followed healthy eating plans which may need relaxing to include more nutrient dense foods, especially when appetite is reduced.

Pharmacists should remember to speak to carers and care home staff about how they can support patients with their dietary intake. Care homes might consider nominating a nutrition champion who can act as the local lead for nutrition screening and promote the use of nutritional care plans for residents. (Specific advice for care homes including sample care plans are available at <https://www.malnutritionpathway.co.uk/carehomes>).

If patients have a specific diet-related medical condition such as diabetes or are having swallowing difficulties, advice and guidance may need to be sought from a local dietitian.

For those who cannot achieve an adequate nutritional intake through food fortification, an ONS may be needed.

How Pharmacists can support appropriate prescribing of oral nutritional supplements (ONS)

The malnutrition pathway (<https://www.malnutritionpathway.co.uk>) includes an evidence-based pathway for the appropriate use of ONS (see figure 2) and includes advice on when to review and when to stop prescriptions.

A prescription for ONS may be considered for those at high risk of malnutrition ('MUST' score 2 or above) if the patient is unlikely to achieve their nutritional requirements through food and drink alone, and/or where food first advice has failed to achieve the desired outcomes. Even when ONS are prescribed, information on maximising intake from diet remains important and should still remain part of the treatment plan.

Evidence from systematic reviews and guidance by NICE demonstrate that ONS in addition to diet are clinically and cost effective in managing malnutrition, particularly amongst those with a low BMI (<20kg/m²)^{28, 30-32}. ONS prescriptions should be clinically appropriate, meet the 'ACBS' criteria and be linked to goals (see goal setting section on page 6). Details on the range of different ONS products available and their suitability for patients can be found at <https://www.malnutritionpathway.co.uk/library/ons.pdf>

In some localities switches to lower cost ONS are encouraged. If a patient has been discharged from hospital on a

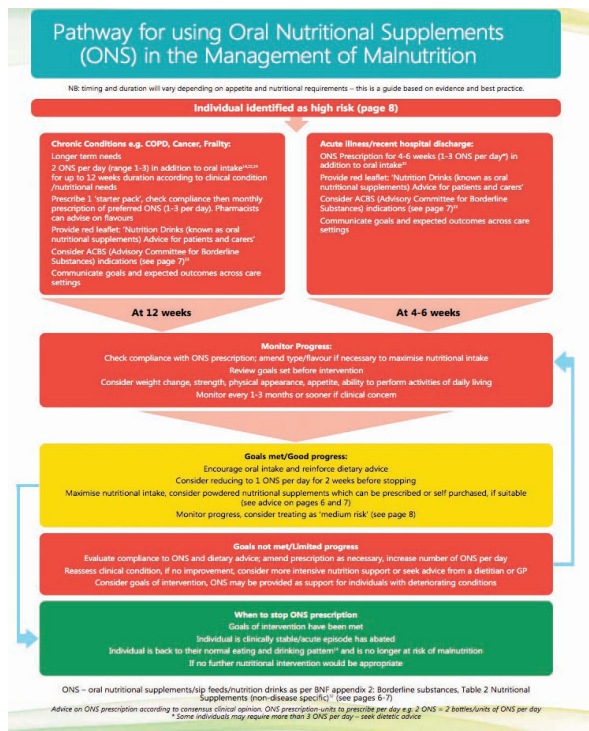


Figure 2: pathway for the appropriate use of ONS

- patient's dexterity/physical function/ balance need to be considered. Can the patient adopt the dietary advice, store and use the ONS, make up a powdered product/shop for milk?
- can the patient manage the volume of ONS or nourishing drinks? (if a patient has a poor appetite a low volume product may be more beneficial)
- personal taste - what flavours/formats of ONS would the patient be most likely to consume?
- can products be provided through a 'company sampling scheme' to determine those preferred? If not can a short-term prescription be provided and review planned?

GOAL SETTING, REVIEW AND FOLLOW-UP

Goals for the nutritional intervention should be agreed with the patient taking into consideration disease stage, overall treatment / healthcare aims, and what matters to the patient. Appropriate review and follow-up needs to be in place. ONS are usually prescribed for a limited period of time. Reviews enable healthcare professionals to assess if a patient is improving, if they need to continue, if the ONS needs to be changed, or should it now be stopped.

For treatment to be effective, consideration needs to be given to:

- the setting and achievement of realistic goals
- the aim of treatment; which could be weight maintenance, weight gain, preventing further weight loss, muscle gain, improving strength, improving mobility, increasing ability to undertake activities of daily living, reducing infections or optimising recovery and healing e.g. of pressure ulcers
- patient monitoring - how often and by whom
- if specialist referral to a dietitian is required

It is important to get the timing of stopping ONS prescriptions right to ensure the treatment is clinically and cost effective, the patient's requirements may be:

- short term - for example following recent hospital discharge (recommendation is for initial 4-6 weeks' treatment according to clinical condition/nutritional needs)⁷
- long term - due to chronic conditions such as frailty (recommendation is for initial 12 weeks' treatment according to clinical condition/nutritional needs)⁷

If ONS are initiated without follow-up, review, and exit strategies, it will compound any pre-conceptions of overprescribing, product wastage, and local prescribing restrictions.

specific ONS, it is advisable to contact the dietetic department before switching products as there may be clinical and patient-centred reasons determining the choice as well as predicted adherence. You may need to seek clarity from the professional recommending the ONS on the goals of treatment, likely duration and who is responsible for review and monitoring⁷.

Whilst switching products may bring short term cost gains, the merit of this should be born against managing malnutrition effectively which can include avoiding hospital admissions/re-admissions, GP visits, antibiotic prescriptions, all of which affects the patient's quality of life⁷.

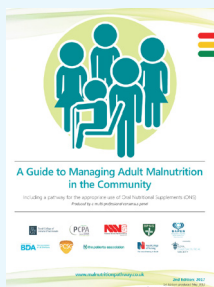
Oral nutritional supplement optimisation

Patients may struggle with the volume of products and, as with our food likes and dislikes, taste can be very individual. Optimising the adherence to treatment can be influenced by a number of factors. When advising and planning nutritional care the following factors should be considered:

- does the patient understand why their nutrition is important and why dietary advice / an ONS is being recommended?
- does the patient have a need for specific nutrients? For example, a patient may have been prescribed a high

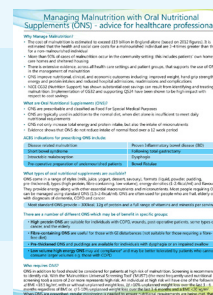
TABLE 3 : MALNUTRITION PATHWAY RESOURCES

The Malnutrition Pathway has developed a number of free resources to specifically assist pharmacists (<https://www.malnutritionpathway.co.uk/pharmacists>) in identifying and treating malnutrition including:



Managing Adult Malnutrition in the Community (The Malnutrition Pathway) - a practical guide and pathway on the use of ONS and dietary advice which aims to assist community healthcare professionals in identifying and managing disease-related malnutrition. It has been developed by a multi-professional team and is endorsed by ten key professional and patient organisations:

https://www.malnutritionpathway.co.uk/library/managing_malnutrition.pdf



Managing Malnutrition with Oral Nutritional Supplements - a quick guide for healthcare professionals on the types of ONS available and their patient suitability. It details the different styles, flavours and products available:

<https://www.malnutritionpathway.co.uk/library/ons.pdf>

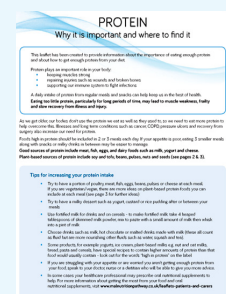


Top Ten Tips for Pharmacists - tips for pharmacists on implementation of malnutrition screening and follow up in primary care:

https://www.malnutritionpathway.co.uk/tipsheets/tipsheet_pharmacists.pdf

COVID-19 resources - based on expert consensus, best practice and available evidence the COVID-19 nutritional resources aim to support professionals dealing with patients during and after an infection of COVID-19, who are being cared for at home or who have been recently discharged from hospital:

<https://www.malnutritionpathway.co.uk/covid19-community-hcp>



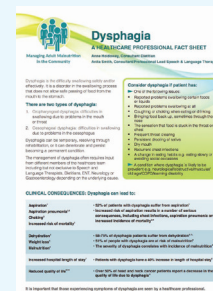
Fact sheets

Protein Foods Fact Sheets - healthcare professional and patient fact sheets on the importance of protein and a useful list of the protein content in everyday foods:

<https://www.malnutritionpathway.co.uk/proteinfoods>

Dysphagia Fact Sheet - a guide to dealing with patients with dysphagia:

<https://www.malnutritionpathway.co.uk/dysphagia.pdf>



Falls Fact Sheet - information on the integration of nutrition into falls pathways: <https://www.malnutritionpathway.co.uk/falls.pdf>

Care homes resources - advice to assist those working in care and residential homes including a fact sheet outlining why older people are more at risk of malnutrition, tips on the identification and management of malnutrition, the implementation of care plans and engagement with other care home personnel to foster an environment that prevents malnutrition: <https://www.malnutritionpathway.co.uk/ carehomes>

SUMMARY

Malnutrition affects 3 million adults in the UK. Left untreated it can be costly to both the patient's health and the healthcare economy^{2,4}. It is particularly prevalent among frail older adults and those with multi-morbidities. Proactively identifying and managing malnutrition has been shown to bring about significant long-term cost savings^{2,4,7} and promote better health outcomes in patients^{2,4,7}.

NICE has shown substantial cost savings can result from identifying and treating malnutrition²⁸. Malnourished patients are more costly to treat than nourished patients⁴. Managing malnutrition is everyone's responsibility but practice pharmacists are ideally placed to proactively identify malnutrition in the community and, if competency allows, take the initial steps in providing advice, signpost to resources or encourage action by others. They can be instrumental in ensuring referral to dietitians occurs at the appropriate time with all relevant information clearly documented. Ensuring that screening is incorporated into medicine reviews and closer working with the local community dietitians or hospital dietetic departments has the potential to deliver long-term benefits in patient care.

Focusing on patient-centred factors when setting nutritional goals and making decisions on appropriate prescriptions can assist in increasing adherence to ONS prescriptions and in improving outcomes for patients.

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