Redefining avoidable and inappropriate admissions

Original Research

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A R T I C L E   I N F O

A B S T R A C T

Objectives: Focusing on policy discourse in the United Kingdom, we examine the chain of causation that is characteristic of the ways in which the concepts of avoidability and inappropriateness are defined and used in these contexts. With a particular focus on diabetes complications, we aim to elucidate the way in which avoidable admission to hospital is conceptualised, measured, and applied to policy development and implementation and build a more inclusive model of identification as a basis for further research in this area.

Study design: Discourse analysis was used in combination with a scoping review.

Methods: We searched the online databases of the UK Houses of Parliament Hansard, Official reports of the Northern Ireland Assembly and transcripts of the Scottish Parliament in October 2021. We also conducted an electronic search in October 2021 on MEDLINE, PubMed, Google Scholar, EMBASE, CINAHL and The Cochrane Library to review the available literature. In addition, an analysis of policies in place in Scotland, England and Northern Ireland relating to urgent diabetes care was conducted.

Results: 'Avoidable' and 'inappropriate' hospital admissions are categories used in health policy and practice internationally as ways of identifying targets for interventions intending to reduce the burden of care. Diabetes mellitus is a chronic condition that is often seen as a costly and avoidable use of health care services and so is a frequent target of such policies.

Avoidable admission is interpreted as having a very long chain of causation. The assumption is that people requiring unscheduled hospital admission could have taken steps to prevent the onset of diabetes, or associated complications, arising in the first place. Definitions focus on primary and secondary prevention and largely place responsibility on the individual and their behaviour rather than on structural or social factors. Inadequate or inappropriate care prehospital or in the emergency department is seldom considered as a potential cause of avoidable admissions. Procedural definitions of avoidable admission are proposed whereby health care professionals and people living with diabetes collaborate to identify avoidable admissions in clinical audit rather than using statistical rates of avoidable admission within isolation in policy development and implementation.

Conclusions: Avoidability and inappropriateness are characteristics of cases in which conduct of the individual or attendant health care professionals was a proximate cause of hospital admission, and but for such conduct, admission could have been avoided. This process of definition seeks to provide a basis for contextualised and considered evaluation of where there are problems in care and where there are reasonable opportunities for prevention.

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Introduction

Diabetes Mellitus, and in particular type 2 diabetes (T2D), is an international public health issue. It presents a significant challenge to governments, clinicians and individuals self-managing the condition. It is estimated that worldwide roughly 463 million adults were living with diabetes in 2019 and that by 2045 this will rise to 700 million, according to the International Diabetes Federation.[1]

Reducing so-called 'avoidable' and 'inappropriate' admissions is a priority for the NHS (National Health Service) in the United Kingdom, as well as for health care systems across the globe.[2] Diabetes-related unscheduled care admissions are frequently assumed to be avoidable and/or inappropriate in statistical analysis.[3] Better self-management, empowered patients and increasingly sophisticated and personalised clinical decision making in theory has the potential to reduce demand and expenditure on services by ensuring avoidable conditions are prevented.[4,5] Public health initiatives to improve diet and exercise routines, education, reductions in socioeconomic disadvantage, integration, and increased accessibility of services (primary prevention measures) can reduce the risk of Type 2 diabetes (T2D) developing in the first place.[6] Intensive lifestyle modification and improved self-management (secondary prevention measures) can also reduce the risk of developing diabetes complications for people with both Type 1 diabetes (T1D) and T2D.[7]

Public health initiatives to prevent the onset and complications of diabetes vary internationally but generally focus on prevention through lifestyle change. Across Europe, the U.S., China, Australia, Japan and India, people considered high risk of developing T2D are targeted with education on diet and exercise, and this has been shown to significantly reduce progression to T2D in a wide variety of settings.[8–14] In the USA, Canada, Chile, the UK and New Zealand individuals in lower-risk tiers are targeted via risk counselling and whole population strategies (e.g. socioeconomic policies aiming to reduce poverty, healthy food promotion and environmental/systems changes).[15–22] Population-level policies, systems, and environmental approaches, along with lifestyle intervention for those at high risk, are likely to be the best way to achieve the greatest level of impact.[23]

Avoidability and inappropriateness are not synonymous, and the distinction between the two is important as it provides a basis for identifying, targeting, and designing interventions and policy initiatives to reduce admission for people with diabetes. In addition, interventions must be evidence-based and carefully tailored for specific contexts in order to be effective.[24,25] Evidence about what is effective in reducing avoidable admissions is mixed and inconclusive, and misconceptions about what and what is not avoidable can lead to naïve or unrealistic expectations of what might be achieved.[25]

Based on the political discourse around diabetes policy in the United Kingdom, a variety of problematic assumptions appear to underly initiatives aiming to reduce avoidable admissions. For instance, policy makers aiming to reduce hospital admissions appear to assume that there is an optimum level of admission or referral to hospital and that fewer admissions or referrals indicates an improvement in health care delivery and efficiency.[25] Only a small number of primary care trusts (PCTs) in England have successfully reduced overall unscheduled hospital admissions despite numerous initiatives.[26] The rate of avoidable admission also varies considerably across different studies.[25,27]

For example, the 2013 Urgent and Emergency Care Review for England stated that '40% could have been helped just as well closer to home'[28] (p. 19). By contrast, the NHS England Next Steps on the Five-Year Forward View suggests that 'between 1.36% and 2.73% of people presenting at A&E could be diverted away from hospital'[29] (p. 14). NHS Digital suggest that '16.1% of ED attendances

occurring between April 2015 and December 2017 were 'non-urgent'.[30] The Nuffield Trust identify Ambulatory care sensitive conditions and urgent care sensitive conditions combined as comprising 3.38% of admissions between 2019 and 2020.[31] This variation may be a result of random fluctuations, contextual factors and different ways of conceptualising and measuring avoidability.[32,33] This means evaluation and comparison are problematic when based on crude statistical rates of avoidable admission. Clinical audit, with extensive input from service users, may bring meaning to crude rates of avoidable admission and allow interventions to be better targeted.[9]

Methods

A discourse analysis was conducted on political debates in the UK Houses of Parliament, The Scottish Parliament and the Northern Ireland Assembly. We searched UK Parliamentary Scottish Parliament and Northern Ireland Assembly Hansard from 2000 to 2021. Keywords included 'Avoidable Admission'; 'Inappropriate admission'; 'Hospital' 'unscheduled admission' and 'Diabetes'. We only excluded extracts that were deemed after an initial review to mention these topics incidentally rather than it being a central topic of discussion. This was based on the principles of discourse analysis outlined by Lupton.[34] A total of 137 extracts from these debates were subjected to discourse analysis and organised into themes. Extracts were included on the basis that they related to reducing avoidable, preventable or inappropriate hospital admissions in diabetes-related cases.

Policy analysis was conducted on the most recent diabetes-related policy documents from the United Kingdom and Scotland, also based on the above inclusion criteria. In addition, we undertook a scoping review to determine the depth of the literature around definitions and usage of avoidability and inappropriateness in relation to hospital admission to provide a detailed overview of the ways that these terms are used, to whom they are applied, where and when, as well as the potential benefits and limitations in terms of developing effective policy.[35]

An electronic search was conducted in October 2021 on MEDLINE, PubMed, Google Scholar, EMBASE, CINAHL and The Cochrane Library to review the available literature. We searched the titles and abstracts of papers, and the time period covered was from 2000 to 2021. Thirty articles from across the globe that examined the discourse of avoidability, measurement of avoidable admissions, policy development and implementation were included (see Fig. 1). Keywords included 'Avoidable Admission'; 'Inappropriate admission'; 'Hospital' 'Unscheduled admission' and 'Diabetes'. This research did not require ethical approval.

Results

Defining avoidable and inappropriate admissions

The verb 'avoid', means to escape, evade, prevent, or obviate. Historically, the term 'avoidable' has been used in a pejorative sense. Historically the term was often used to attribute causality and blame when someone failed to avoid a given outcome.[36] An associated concept is 'inappropriateness', which refers to something that is unsuitable to the particular case; 'unfitting, improper'.[37] It has been used to distinguish between desirable or undesirable behaviours based on the pragmatics of a given context. Although the concepts of inappropriateness and avoidability have some overlap and are frequently used interchangeably in the discourse on diabetes-related hospital admissions, there are some important differences that require explanation.
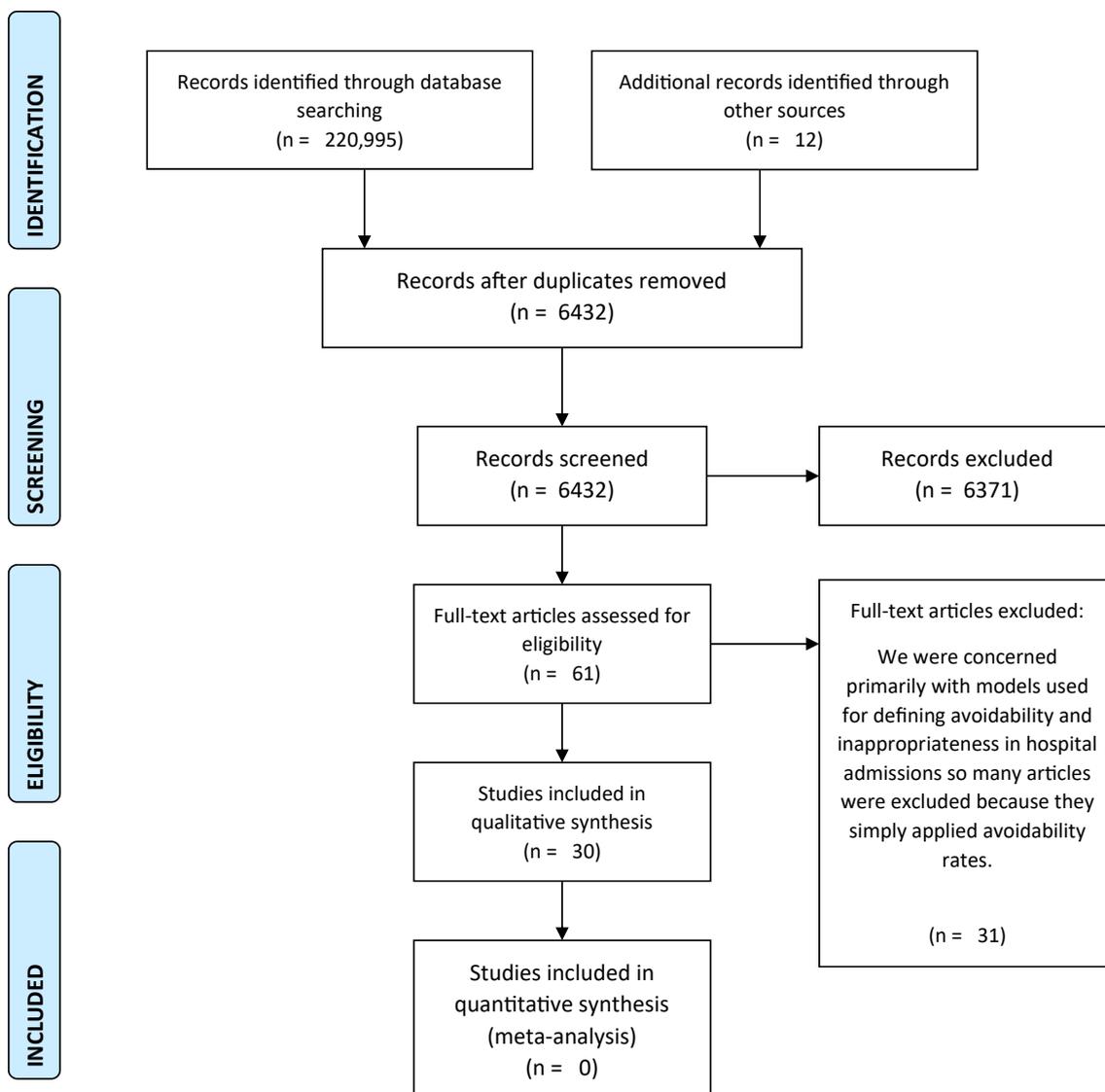
Fig. 1. Defining Avoidable and Inappropriate Hospital Admissions: A scoping review — PRISMA Flow diagram.

A case of diabetes-related hospital admission may, in theory, be avoidable in the sense that events in the chain of causation leading to hospital admission may have been preventable. With hindsight, it is almost always possible to identify an act or omission that contributed to hospitalisation, and it could have been avoided. In law, this is called a *novus actus intervenes*, or an intervening act that breaks the chain. However, the mere possibility of an intervening act (e.g. in public health, education, primary care, prehospital or emergency departments) does not necessarily render the eventual hospitalisation inappropriate. In the presenting circumstances of a medical emergency, it is, of course, appropriate and necessary that lifesaving care in the hospital setting is provided. Appropriateness is thus a contextualised concept that depends on the way decisions are made by HCPs in the agony of the moment. It is an evaluation of whether decisions leading to hospitalisation were reasonable. Conversely, avoidability merely depends on the possibility of breaking the chain of causation and does not necessarily ask whether avoidance was feasible in situ (Fig. 2).

Although an avoidable admission is not necessarily inappropriate, an inappropriate admission may, by definition, be avoidable. If hospitalisation is not required — perhaps because suitable treatment can be provided in the community or primary care —

then the admission could be prevented by diversion to the appropriate services.[24]

Objectivised measures of appropriateness and avoidability

Objectivised methods of defining avoidable admissions come in two forms: checklist definitions based on a set of standardised criteria and definitions based on professional opinion and/or expert panels. Checklist models were initially developed in the USA to decide the hospital admissions that were appropriate for insurers to fund. An initial function of the language of appropriateness was to distinguish between deserving from undeserving service users. Checklist models are standardised lists of criteria, which indicate a set of symptoms or circumstances that necessitate hospital admission. Criteria usually relate to the severity of an individual's condition and the type and intensity of services provided.[24]

Prevalent checklist models are the AEP (Appropriateness Evaluation Protocol), the ISD-A (Intensity-Severity-Discharge Review System with Adult Criteria) and MCAP (Managed Care Appropriateness Protocol). A term used frequently in UK policy and academic discourse is Ambulatory Care Sensitive Conditions (ACSCs), denoting conditions that can be treated effectively in primary care.
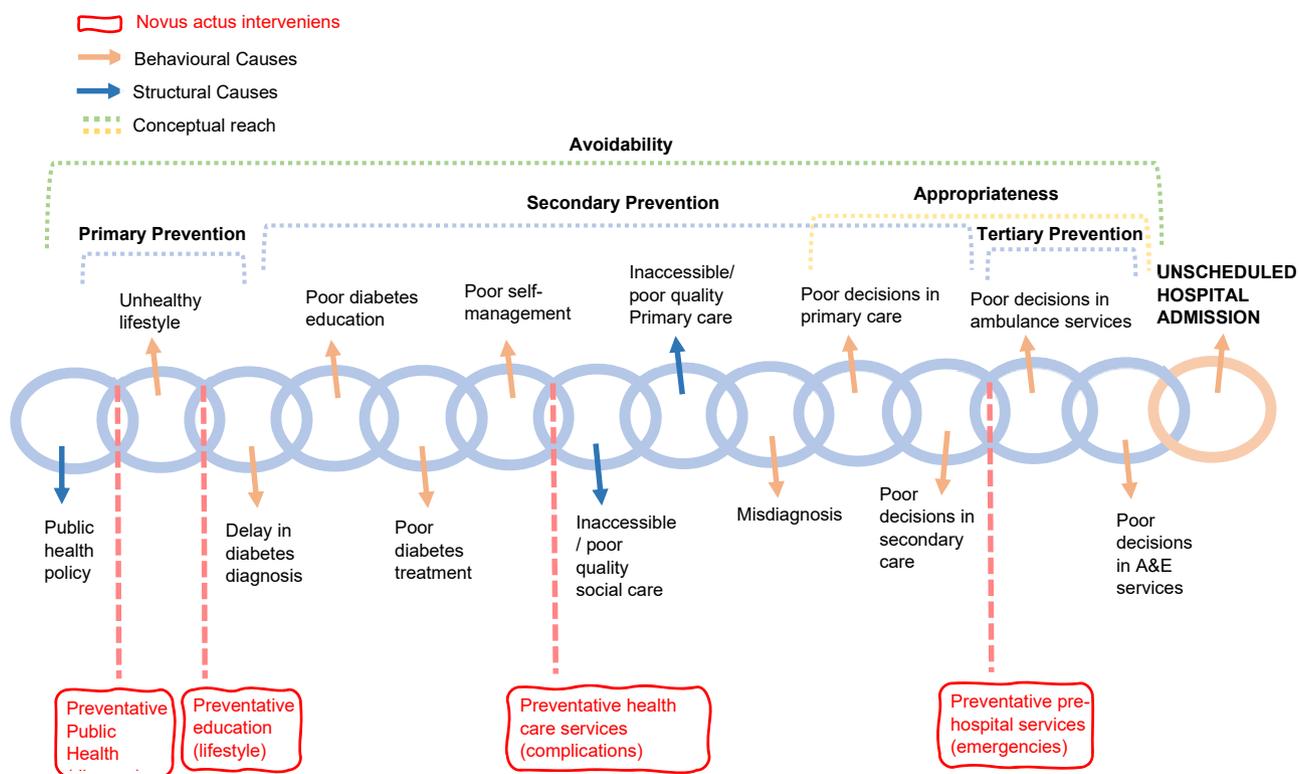
Fig. 2. The chain of causation in unscheduled diabetes-related hospital admissions.

Admissions for ACSCs are often assumed in statistical models to refer to avoidable admissions.[2] Checklist models produce easily quantifiable results and can help public health professionals and policy makers in evaluating and comparing services. The Appropriateness Evaluation Protocol (AEP) proposes admission criteria based only on physiological and laboratory parameters. However, the AEP has been found to be a poor predictor of mortality in all age groups. Researchers have advised that it not be used to evaluate the appropriateness of admissions.[38]

Another model used in the USA is the NYU algorithm[40] that assigns the probability that an ICD-9 diagnosis code associated with an Emergency Department visit falls into one of four categories:

1) a non-emergency (NE);
2) an emergency (defined as a problem requiring contact with the medical system within 12 h) treatable in an office visit (primary care treatable (PCT));
3) an emergency not treatable in an office visit but preventable or avoidable (EPA) and
4) an emergency that is not preventable or avoidable (ENPA).

The NYU algorithm excludes uncommon diagnoses and treats mental health and substance abuse diagnoses separately.[39] This model has been independently validated using hospitalisations and deaths as outcome measures, so it appears relatively robust. Ballard et al. found that because the NYU algorithm utilizes existing clinical data rather than time-intensive chart review, it can be easily applied in different times and settings at relatively low cost.[39] A similar model could be useful in evaluating and comparing avoidable admission rates between hospitals in the UK context rather than relying on ACSCs. However, the NYU Emergency department visit classifier, by the developer's own admission, is not appropriate for determining avoidable and inappropriate admissions in a way that might suggest appropriate changes in social, or primary and secondary health care delivery at the local or individual level.[39]

Checklist criteria combined with the use of algorithms are useful in constructing statistical estimates of the number of preventable hospital admissions in the UK and other jurisdictions for comparison and evaluation of performance. Diabetes complications are a prime example of some of the weaknesses of this approach. In reports produced by the Nuffield Trust,[3] avoidable admission rates for people with diabetes in the UK are built from the sum of three indicators: admissions for short-term diabetes complications; admissions for long-term diabetes complications; admissions for uncontrolled diabetes without complications.

The rate of avoidable admission for people with diabetes is defined as the number of hospital admissions with a primary diagnosis of diabetes, among people aged 15 years and over, per 100,000 population. The Information Service Division (ISD) of NHS Scotland, in presenting statistical analysis, similarly defines practically all hospital admissions for people with diabetes as avoidable.[40] The ISD explain that this is because routine monitoring, dietary modification and regular exercise can reduce the need for hospitalisation.[40] This methodology is based a problematic assumption that personal choices are the main driver of avoidable admissions. A more detailed classification system that does n' rely on lumping all diabetes complications into the category of avoidable, for example, based upon the NYU Categories, would perhaps be more useful (See Fig. 3).

Political discourse

The discourse that frames the classification of all diabetes-related hospital admissions as avoidable in the UK generally focuses on the ways in which risk of diabetes-related complications could be reduced by the person themselves through individual behavioural change. This places almost all responsibility for hospitalisation on the individual and does little to inform for positive change in clinical practise or health care delivery at the local and individual level. For this kind of change, more detailed auditing of

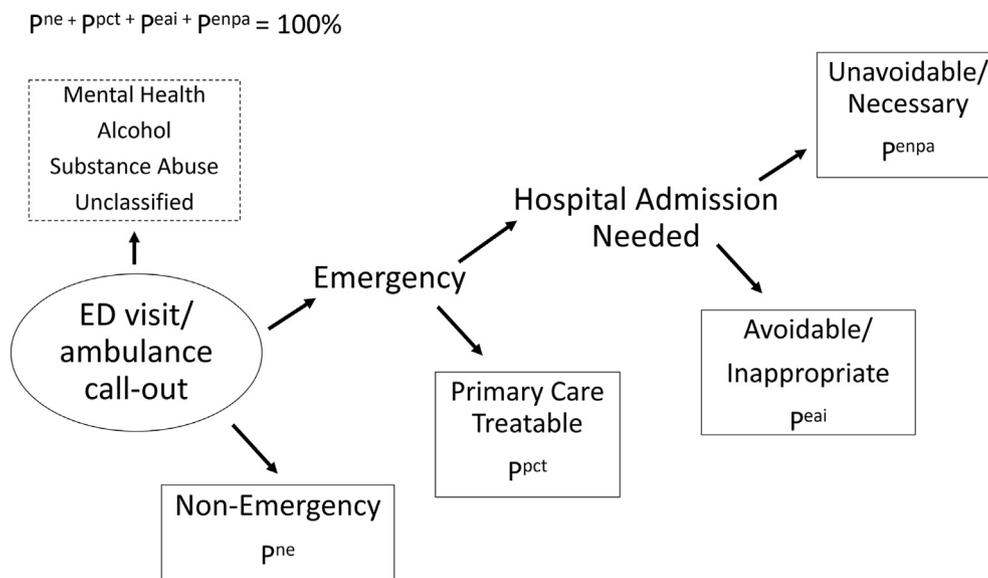$$P^{ne} + P^{pct} + P^{eai} + P^{enpa} = 100\%$$

Fig. 3. NYU Algorithm adapted for use in the NHS System.

individual and local cases appears necessary alongside something like the NYU Algorithm to identify drivers of avoidable admissions at a more granular level and to improve care for particular chronic conditions such as diabetes.

The fact that the risk of diabetes complications can be reduced by improvements in lifestyle, including adherence to therapy and diet, is seen as sufficient to define all diabetes-related admissions as avoidable. This is a blanket generalisation that may not reflect the experience of people with diabetes. In some circumstances and for some individuals, it is not reasonable to expect them to change their way of life and the environments in which they live may not be exercise friendly or they may find it difficult to access healthy and nutritious food. The expectation that a person diagnosed with diabetes should increase their daily exercise, adapt their diet and frequently monitor and manage their glucose levels is often unrealistic in the absence of public health initiatives and involves assumptions about costs and benefits that may not take sufficient account of the individual's conception of the good life. In addition, reducing health risks does not necessarily provide a guarantee of a life free of diabetes-related complications.

This discourse shifts focus away from public health, primary and secondary care, and accessibility towards individual behaviour. These assumptions are embedded at the root level of the data and statistics and so are objectivised and become incontestable at the stage of political debate and policy development. We can contrast the way diabetes-related and smoking-related admissions are treated. Smoking-related conditions are not included en masse in the ISD avoidable admissions rate (COPD) even though smoking cessation can significantly reduce the risk. The logic of personal responsibility is inconsistently applied, indicating a special contempt for people with T2D in particular.

Using a statistical rate of avoidable admissions, based on checklist criteria, as an objective comparator between health providers is dubious because data recording and coding practices vary considerably within the UK. For example, coding of diabetes as a principal diagnosis versus a secondary diagnosis varies between Northern Ireland, England and Scotland, making direct comparisons difficult. Even within England, the comparison between regions is questionable.[26] The north of England, for instance, has higher avoidable admission rates even adjusted for deprivation

(IMD); therefore, it is possible the variation is due to other factors such as disparities in primary, community and secondary care provision, health service accessibility or the wider determinants of health not included in the IMD.

Reported rates of avoidable admission, based on current definitions, may be difficult to compare between trusts or hospitals as institutions recording of cases involving diabetes complications are not necessarily recorded as such. Neither do such measures take account of differences in disease prevalence, local services, or culture.[11,26] The ISD-A and NYU algorithm, for example, do not consider the fact that there may be no other option in the local area for the individual except hospital.[19] In addition, the AEP is often amended and adjusted in practice, which means that assessments are unreliable.[26,41–43]

This is not to say that statistical methods of measuring avoidable and inappropriate admissions should not be used. It is that they are not very effective tools in evaluating local services or clinical practice in constructive ways. It is suggested that more detailed, local and individual audits of clinical practice in areas such as diabetes care could be a vital addition to existing measures of avoidable admissions. User-led definition and audit of avoidable cases may offer invaluable insights, and this should also factor into policy and practice looking to reduce avoidable admissions.[24]

In applying definitions of avoidability, professionals exercise subjective judgement as to whether a given admission is appropriate or not. Checklists and algorithms appear to be helpful as a rough outline of relevant considerations; however, they also objectify the outcomes of such judgements and can even embed prejudice about people with conditions such as diabetes. Appropriateness of a given admission depends on when the AEP or ISD-A are applied to each person's case and by whom.[24,44] The NYU method, although appearing to be more objective by the application of computerised algorithms, uses only clinical data, and this assumes that a wealth of information about individual and local circumstances from a service user perspective is irrelevant.

The method of defining avoidability through assessment by algorithms, experts and professionals is an exercise of judgement based on disciplinary knowledge, opinion, and experience. Classification may also be conducted by trained researchers. In both

procedures, the expertise and experience of people with diabetes themselves are not required.[11] This indicates that direct experience of diabetes is not adequately recognised as a useful or legitimate contribution to the process of definition.

Only two previous studies have included service users in assessing the avoidability and appropriateness of hospital admission.[24,32] These studies indicate that the term inappropriate, as applied to admissions, carries several negative connotations that service users are reluctant to apply.

For people with T2D, improved diet, lifestyle, and glucose control, usually at an early stage, can be associated with remission and a significant reduction the risk to health and wellbeing.[45] However, such measures cannot eliminate the risk of complications arising nor render diabetes-related hospital admission an impossibility. Therefore, a proportion of diabetes-related admissions must be necessary and appropriate. This means that statistics on avoidable admissions that include all diabetes-related hospital admissions are misleading without greater input of service users on what leads them through the hospital doors. Despite this, the policy discourse continues to place responsibility for diabetes-related hospital admission on people with diabetes themselves. This can frame the problem of overstretched services as within the power of individuals to change and beyond the scope of governmental responsibility. This has implications for both policy and the way in which admissions are viewed and dealt with by HCPs. It could also influence behaviour in the uptake of services.

Constructing the use of unscheduled care services by people with diabetes as problematic and 'inappropriate' in almost all cases could paradoxically create a culture in which patients are discouraged from seeking help when they need it to avoid judgement, resulting in more serious and preventable complications reaching crisis point. Greater efficiency (shorter stays in hospital for each admitted patient) may lead to more 'inefficiency' (greater number of avoidable emergency admissions).[24]

The expertise and experience of people using services due to diabetic complications are crucial to understanding the context in which unscheduled admissions occur and developing appropriate reforms to reduce avoidable admissions however they are defined.[46] This is particularly important at a time when law and policy emphasize a commitment to person-centred care and 'nothing about me without me'.[47] More inclusive and democratic epistemologies expand the range of evidence and data on which our knowledge draws and can thus provide a more holistic, long-term view of the factors that contribute to hospital admissions. The inclusion of perspectives of people with direct experience will help to build a more comprehensive picture of how best to respond to the interests and perspectives of people with diabetes where prevention is possible, reasonable and desirable in light of competing priorities.[11]

Discussion

There is limited evidence on the effectiveness of interventions aimed at reducing unplanned admissions in diabetes cases to date. Interventions have generally been focused on different stages along the patient journey, from preventive management of people at high risk of admission, through to services that manage acute diabetic complications without resorting to hospital admission.[48] Interventions often focus on individual patients and seek to develop capabilities for self-management.[49] This reflects a long view of causation of admission, with the privilege of hindsight and without an intimate understanding of surrounding circumstances of the person.

For researchers, HCPs and policymakers, avoidable admissions are usually based on the idea that people with diabetes could have

taken steps to prevent the disease and associated complications arising in the first place.[50] It is helpful to visualise this as a chain of causation that is cut in different ways according to diverse perspectives (see Fig. 1).

Defining avoidability in diabetes-related cases and persons with other chronic health conditions is a judgement call on which events are relevant in the chain of causation leading to admission (see Fig. 1). An exclusively medical perspective can mean that a person's unique circumstances and context are inadequately considered, and thus relevant knowledge is excluded from the decision-making process. A procedural definition of avoidability for use in clinical audit that incorporates both HCP and service user perspectives is proposed as an alternative to the statistical comparison of rates of avoidable admissions. The criterion for avoidable admissions is based on a test for causation in medical negligence cases. It is a procedure for reaching a considered judgement and not an objective test.

To identify a case of hospitalisation as avoidable or inappropriate, it should pass a version of the 'but for' and Bolam/Bolitho tests in law.[51,52] This allows a considered approach to the question of causation and provides service users with an opportunity to contribute to the narrative of their admissions:

1. Avoidable hospital admissions can broadly be identified where:
   a. Admission would not have occurred if the policymakers, HCPs and/or service users had taken all reasonable steps to ensure prevention, diagnosis, and management in the community and;
   b. Unscheduled hospital admission directly followed (i.e. it is a proximate cause of admission rather than far removed down the chain of causation – see Fig. 1).
2. Inappropriate admissions may be identified where
   a. Decisions were made in social, primary, secondary, pre-hospital and/or emergency services that other reasonable clinicians would regard as unsuitable to the patient's needs and circumstance and;
   b. Unscheduled hospital admission directly followed.

The test may, in practice, still be vulnerable to the tendency to place undue emphasis on HCP perspectives in determining what 'skilled' or 'preventative' practices are. Frequently the voice of clinical expertise can become dominant. If the knowledge of those with direct experience could be accorded equal value as clinical expertise, and if both HCPs and service uses are equally represented in the retrospective classification of cases, then the interests and perspectives of all relevant stakeholders can be given due consideration. This should be a measure that is undertaken in addition to the use of something like the NYU algorithm and could be used to define some of the key indicators such as 'non-emergency' 'primary care treatable' and 'avoidable/inappropriate' (see Fig. 3). An issue with the methods proposed is that they could produce outcomes that are not amenable to straightforward statistical analysis. They could also be viewed as inefficient. However, they may prove their worth in coconstructing best practices that can improve the avoidance of hospital admission in local contexts and may be useful in providing more detailed comparisons between different approaches. In this way, it may be very useful in both developing policies and clinical commissioning, as well as tailoring policy to localities and communities.

Conclusions

In policy and practice, avoidability and inappropriateness have become so familiar that they are not seen as a way of 'ordering', but as an 'order inherent in the phenomena'.[26] Here, we have

attempted to set aside the taken-for-granted definitions of these concepts and examine alternative and, we suggest, potentially more productive practices of categorisation.

Objective comparisons between services based on avoidable or inappropriate admissions remains an ideal rather than a reality. Rather, avoidability in the policy discourse appears to be used to frame the treatment of people with chronic conditions in hospitals as an unnecessary distribution of resources.

Although there may have been a degree of selection bias in the materials analysed, it appears that in a wide variety of political discourses, the focus on diabetes, as a particular contributor to avoidable admission rates. This reflects a tacit assumption that diabetes complications are primarily caused by individual lifestyle choices. This can function to exclude the legitimate knowledge of people with both T1D and T2D and justify the rationing of services. This is highlighted by a more beneficent approach to policy and practice vis-à-vis people, and in particular, children with T1D who tend to be viewed more as random victims of a disease. Even in these cases, a lack of glycaemic control is often seen as a culpable reason for unnecessary admissions.

If the use of unscheduled care services by people with diabetes is unilaterally defined as 'problematic and inappropriate' in almost all cases, we could discourage people from seeking help when they need it, resulting in more serious and preventable complications reaching crisis point. Ensuring that people seek help and that there is the capacity to deal with early intervention is crucial. Timely access to and the response of services is important not only in diabetes but other conditions too. Using a model similar to the NYU algorithm to identify problematic hospital admission rates in combination with a more intensive auditing procedure based on collaborative definitions of avoidability and inappropriateness as modelled above could be more useful in improving service provision and preventing avoidable hospitalisation in chronic conditions such as diabetes.

Author statements

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