



Royal College of
General Practitioners

Responding to the needs of patients with multimorbidity

A vision for general practice



Executive summary

The provision of effective, person centred care to patients with multimorbidity is a key part of creating a modern 21st century NHS, and is a challenge in which general practice is very much at the forefront.

The number of patients living with multiple long-term conditions is increasing as a result of an ageing population, but also due to multimorbidity occurring earlier in deprived areas.

Patients living with multiple long-term conditions often receive a worse experience of the health and social care system. This can include not having access to services when they are most needed, consultations that are too short to discuss their multiple conditions, and fragmented care as a result of the disjointed approach of specialisms and services which are focused on specific diseases.

This occurs alongside burden of illness, where patients have to live with their conditions, often changing their lifestyle to do so. Patients also must cope with burden of treatment, which results from patients having to attend numerous appointments, and medication burden from complex medication regimens.

General practice plays a vital role in caring for patients with multiple long-term conditions. However, GPs are facing barriers in providing care to this patient group including a lack of research into multimorbidity, especially when physical and mental conditions occur together, complexities of polypharmacy, and incentives which are single disease focused. To address these barriers, it is essential that action is taken at GP practice, local health system and national level. This will support the cultural, clinical, contractual and organisational changes needed to improve outcomes for patients with multimorbidity.

The multimorbidity challenge

Introduction

Multimorbidity is a major issue facing modern day general practice. Analysis conducted by the College has shown that by the year 2025 the number of people living with one or more serious long-term conditions in the UK will increase by nearly one million, rising from 8.2 million to 9.1 million. Combined with the current ageing population, the increased prevalence of long-term conditions is having a significant impact on health and social care, and could cost general practice an extra £1.2 billion a year over the next decade.

While recognition of the challenges posed by multimorbidity is gradually increasing, there is still a long way to go in ensuring that the health system responds adequately to the needs of this growing patient group. This paper examines the experience of patients with multimorbidity and assesses the barriers that currently exist to improving their care. It outlines the actions that need to be taken by practitioners and policy makers to tackle these barriers, and highlights the need for tools to be developed that support those in general practice in providing care for patients living with multiple long-term conditions.

Defining multimorbidity

Multimorbidity is often defined as two or more long-term conditions that coexist independently in the same individual.

Whilst with comorbidity the focus is on an index condition (e.g. diabetes), multimorbidity does not imply any one condition is more important than another. This is particularly relevant in the general practice setting, as the relative importance of different conditions can wax and wane over time.

When defining multimorbidity, it is also important to remember that multimorbidity itself is not a disease. To each patient, different things matter and this makes establishing the impact of multimorbidity, both on the patient and their utilisation of the wider health care system, difficult to measure.

Who and how many people are affected?

Estimates of the proportion of the population with multimorbidity vary according to the datasets used and how many different conditions these include. For example, in a retrospective study by Salisbury *et al.* (2011) of approximately 100,000 adult patients across 182 practices in England, 16% of patients had multimorbidity, defined as having two or more of the chronic diseases in the Quality and Outcomes Framework, but 58% had multimorbidity when a wider list of 114 chronic conditions was considered¹. In Scotland, Barnett *et al.* (2012) extracted data on 40 morbidities from a database of approximately 1.75 million people and found that 23.2% of the population studied were living with multiple long-term conditions².

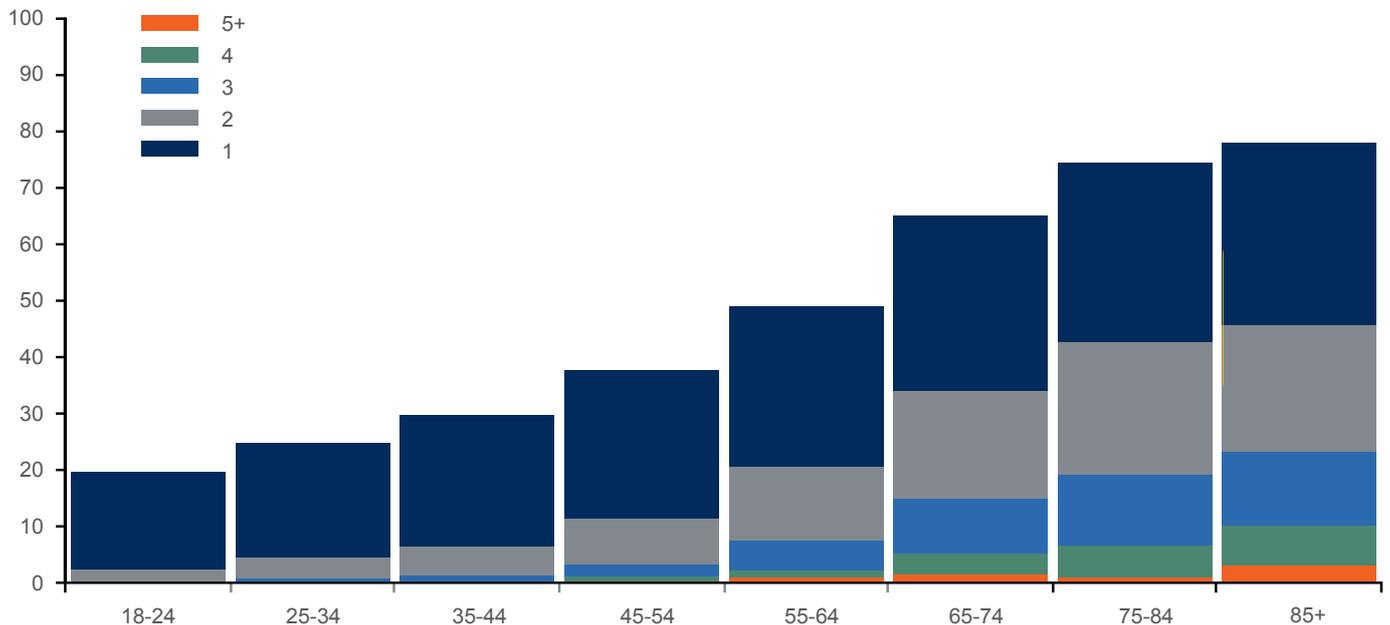
Despite the variation in definitions used, it is clear that the prevalence of multimorbidity across the UK is rising, as are the number of people surviving what would have previously been terminal illnesses, and the number of people being diagnosed. Analysis conducted by the College has shown that by the year 2025 the number of people living with one or more serious long-term conditions in the UK will increase by nearly one million, rising from 8.2 million to 9.1 million.

Research indicates that the likelihood of developing multimorbidity is linked to the following factors:

- **Age.** Salisbury *et al.* (2011) found a positive correlation between age and both the percentage of people living with multimorbidity, and the number of conditions experienced³. See Figure 1.
- **Deprivation.** Evidence suggests that multimorbidity occurs in people 10-15 years earlier in more deprived areas than more affluent ones⁴.



Figure 1: Number of QOF conditions – percentage breakdowns by age group (Salisbury *et al.* 2011)



While older people are more likely to experience multimorbidity, it is important to note that it is not just a problem amongst the elderly. For example, Barnett *et al.* (2012) found that of the 1.8 million people examined in their study there were more individuals living with multiple long-term conditions aged below 65 than above⁵.

How effectively does the current health system serve patients with multimorbidity?

As more people live longer, patients with multimorbidity are accounting for an increasing proportion of the activity in the health care system.

The Department of Health has estimated that in England long-term conditions account for 50% of all GP appointments, 64% of outpatient appointments and 70% of inpatient bed days⁶. Research by Akker and Muth⁷ suggests that the proportion of general practice appointments accounted for by patients with multimorbidity could be even higher at 80%.

Overall, £7 out of every £10⁸ of health and social care expenditure in England is spent on patients with long-term conditions, with the spend per patient per year increasing according to the number of long-term conditions they have.

Despite this, patients with multimorbidity often have a worse experience of the health and social care system. Problems can include:

- Being unable to access health and social care services where and when they are most needed;
- Consultations which are too short for patients to discuss their multiple conditions;

- Fragmented care resulting from a disjointed approach across different specialisms and service areas, leading to discontinuity;
- Numerous, and often duplicated, tests;
- Being more likely to have unplanned, potentially avoidable, hospital admissions;
- Services which are focused on specific diseases, making it harder to receive holistic care;
- Conflicting advice from different doctors.

Burden of illness

Part of living with multiple long-term conditions is managing the burden of illness. Patients often have to change their behaviour to manage their illnesses and at times have to influence the behaviour of others to fit in with the lifestyle shaped by their conditions and treatment⁹. Where factors such as frailty, deteriorating manual dexterity, low health literacy and cognitive impairment occur alongside multimorbidity, the burden of illness is greater¹⁰. The combination of physical and mental health conditions, as well as issues such as alcohol dependency, can also exacerbate issues further.

Burden of treatment

The treatment of multiple long-term conditions takes up a significant amount of effort and time for patients. They must arrange their lives around attending clinical appointments and often must take time off work to do so¹¹. They have to navigate through specialised care, where at times specialists don't know what other specialists are doing. They also have to collate clinical information on their health and input this

into administrative systems, attend appointments and learn to understand their condition. All of this can have a very real effect on patients' quality of life and that of their families and carers.

In addition, the current system is not designed to support the lifestyles of patients living with long-term conditions, tending to prioritise measures to maximise clinical outcomes. Often automatic notifications in the GP-patient consultation, reminding GPs to test different health level indicators, make it difficult for those in primary care to prioritise what matters most to patients and their lifestyle.

Medication burden

As well as living with the burden of their illnesses, patients must live with the burden of taking medication. Whilst medications are intended to improve a patient's health outcomes, they can have adverse side effects and affect a patient's quality of life. Evidence of this can be seen in one fifth of preventable hospital admissions being due to patients not adhering to their medication¹². The more drugs a patient is prescribed the more complex their medication regimen becomes and the less likely they are to follow it properly, with many patients not having the time to do so. Patients also need to have high levels of numeracy and literacy, as well as practical skills, with some having to learn new skills, such as being able to administer injections.

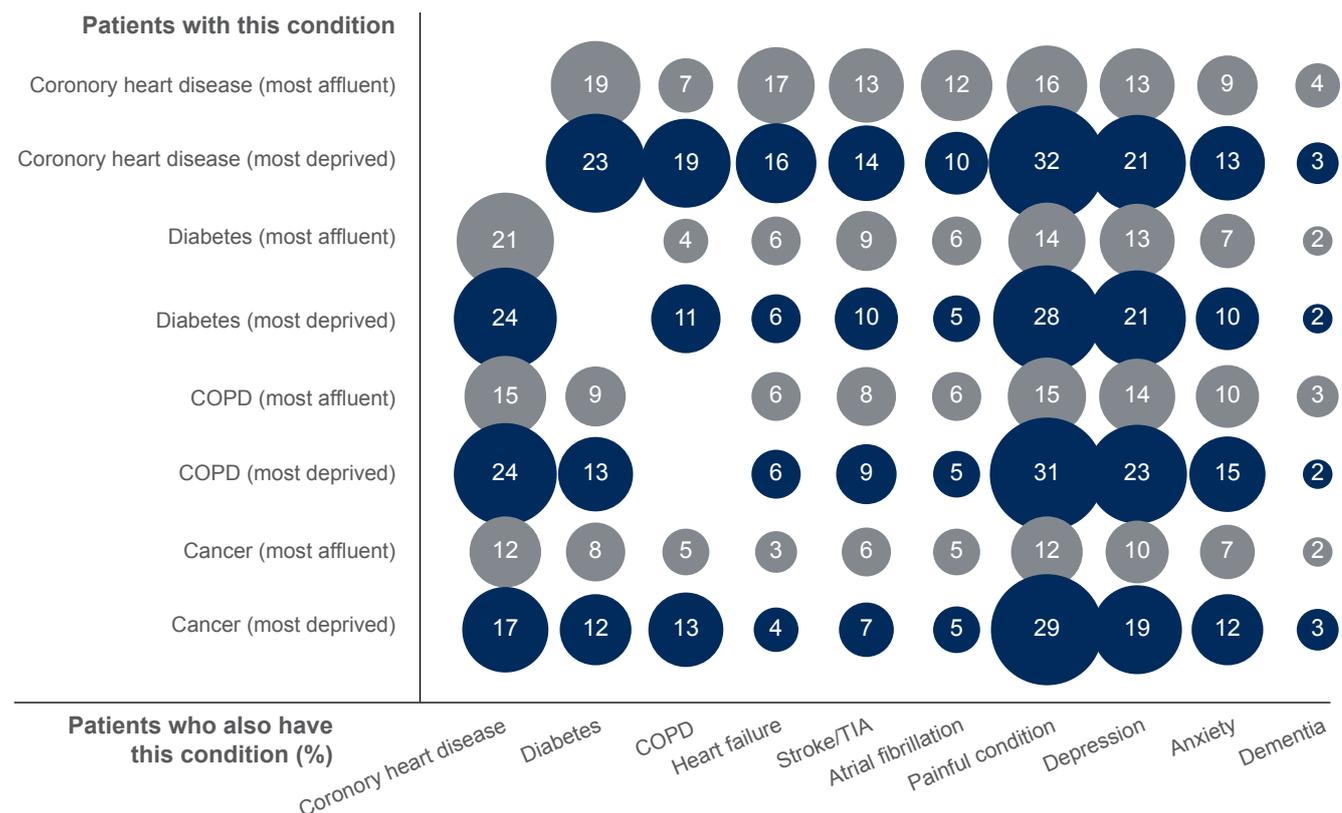
Common clusters of conditions

Patients with multimorbidity have to live with the complex interactions of their conditions. There are, however, sets of conditions that are more common than others. Despite these common combinations, there is little understanding of the impact the conditions that make them up have on each other in terms of clinical interactions, quality of life and service use.

In order to make progress in delivering quality healthcare to patients with multiple long-term conditions, it makes sense to focus on further study of condition combinations that are most common. Common clusters across the world have been reported to be cardiovascular/metabolic, anxiety/depression/psychological disease, and neuropsychiatric or psychogeriatric conditions¹³. A systematic review by Violan *et al.* (2014) also investigated patterns of multimorbidity and identified the most common pair of conditions as being osteoarthritis plus a cardio-metabolic condition, such as diabetes or hypertension¹⁴.

Figure 2 illustrates clusters of common conditions as reported in the study by Barnett *et al.* (2012). A secondary analysis of the same study found that only 10 conditions accounted for the five most prevalent conditions at different ages in patients with multimorbidity across the life-course; in every ten-year age group pain and depression featured in the top five conditions (McLean *et al.*, 2014)¹⁶.

Figure 2: Selected comorbidities in people with four common, important disorders in the most affluent and most deprived deciles (Barnett *et al.* 2012)



What barriers do GPs face in providing care to people with multimorbidity?

GPs are the first point of call for patients and as a result are paramount in delivering care to patients with multiple long-term conditions. As expert medical generalists, GPs play a vital role in overseeing and coordinating care for all patients, but especially for those with complex needs. They facilitate a patient's transition between primary and secondary care, and ensure that patients receive holistic, person-centred care, where the patient is involved in the decision making process as much as they wish to be.

Patients who receive relational, managerial and informational continuity from their GP have better health outcomes, higher satisfaction rates and the healthcare they receive is more cost effective¹⁷. Relational continuity in particular, defined as the extent to which a patient experiences an ongoing relationship with a clinician, is essential for patients living with multimorbidity, who will typically have numerous interactions with the healthcare system over time.

However, general practice is facing unprecedented challenges. The capacity of the service has not been able to keep up with growing patient need, putting GPs under great strain and leaving them with little time to adapt and innovate. While the need to invest more in general practice is now being recognised, in particular in England through the GP Forward View, additional resources will take time to flow through and will need to be used carefully to have the maximum beneficial impact for patients with multimorbidity.

Lack of time

Current consultation lengths make it difficult for doctors to deliver quality patient care for patients with one short term bout of illness, let alone those with multiple long-term and complex conditions.

In England, in 2013/14 the average consultation length was 9.2 minutes which is insufficient to meet the needs of patients with multiple health problems¹⁸. Research undertaken in England into the content of GP consultations has estimated that in each consultation, on average, 2.5 different issues are discussed¹⁹. With many patients having in excess of five conditions, the current system makes it difficult for those in general practice to care for patients who have chronic conditions and only 8% of UK GPs feel that the current consultation length is long enough²⁰. Whilst there is a lack of research into the feasibility of offering extended consultations as standard to all patients with multimorbidity, it seems apparent that these patients will need longer consultations to make their care most effective²¹.



Lack of research into multimorbidity

Multimorbidity is one of the greatest challenges in 21st century healthcare. Despite this, research into patients with multiple long-term conditions, whether these be related to physical or mental health, is still very much in its early stages.

Patients with multiple long-term conditions are often excluded from single disease clinical research, in order to ensure there are no influencing external factors. This method of research aims to understand how to treat an 'average uncomplicated patient'. As a result there is little evidence base for patients with multiple long-term conditions, yet it is often patients with multimorbidity to whom the findings of this research are applied.

Whilst there has been slightly more research into co-morbidity, it is often specialist-based and the findings are not always applicable to patients with multimorbidity in the primary care setting. A systematic review of US based studies published between 2008 and 2014 showed that only 27 met the selection criteria of including those with multiple long-term conditions; addressing either improved clinical outcomes, efficiency of health care and spending or patient satisfaction and making comparisons to a baseline measurement²².

In addition to this, where research is conducted it is often led by those with vested interests in the study outcomes. The drug and medical services industry plays a large role in clinical trials, and is often responsible for defining an illness and the levels of benefit at which a drug is deemed to be successful²³. This makes it difficult for clinicians to establish if an intervention is suitable for an average patient, let alone for patients with multimorbidity.



More broadly there is a lack of research into the ways in which professional practice can be developed and services designed to provide the most effective care to patients with multimorbidity. It is fundamental that more research is conducted into meeting the needs of patients with multiple long-term conditions, alongside influencing factors such as socio-economic deprivation, condition severity, frailty and vulnerability²⁴. In addition, a better understanding is required of how clinicians and patients use research evidence, and how this feeds into clinical communication, diagnostic options and shared decision making²⁵.

Polypharmacy

Whilst patients may struggle to manage the numerous medicines prescribed for their multiple conditions, GPs also face challenges in prioritising medicines of patients with multimorbidity.

Current guidelines advise GPs on medicines to prescribe in order to treat a particular condition - not how to treat the patient in the context of all their conditions. This can often result in GPs being advised to prescribe numerous different medications. Sometimes polypharmacy is appropriate, with patients experiencing significant benefit from being on multiple medications; however, often it is problematic²⁶. One study by Wallace *et al.* (2015) reported that approximately 20% of patients with two conditions were prescribed four to nine drugs, and 1% of patients were prescribed ten or more drugs. For patients with at least six long-term conditions this increased to 48% and 42% respectively²⁷. Additional research into age and multimorbidity reported that around two thirds of patients over the age of 70 take five or more medicines, with one third of this group taking nine or more drugs a day²⁸.

While GPs are expert generalists, it is extremely difficult to know how drugs recommended for the considerable number of combinations of single disease conditions will interact. The more drugs a person is prescribed, the greater the risk of human error or adverse drug reactions. The implications of this are far reaching. Adverse drug reactions account for 6.5% of hospitalisations, half of which are preventable²⁹. In addition there is a significant financial

implication with medicines currently costing the NHS more than £10 billion a year³⁰.

A broader view also needs to be developed as to what is included when making judgements about drug effectiveness. Whilst trials may show a drug to be successful, in patients with multimorbidity there are more factors at play. Numbers needed to treat and harm should be reviewed when prescribing drugs for patients with long-term conditions, and in elderly patients especially, the benefit of prescribing drugs which increase life expectancy should be carefully considered. The need for older patients to have support to manage their medication should also be recognised, with both health and social care services collaborating to ensure that appropriate plans are in place.

Limitations of guidelines when treating patients with multimorbidity

Single disease guidelines offer limited assistance and can even be contradictory when providing care to patients with multimorbidity. Current single disease focused guidelines do acknowledge that co-morbidity should be considered when developing a management plan³¹; however, little reference is made to multimorbidity. As a result GPs face information overload from numerous conditions guidelines; a lack of clinical evidence on effectiveness of interventions for patients living with multimorbidity; and barely any evidence into the most cost effective treatments.

The National Institute of Health and Care Excellence (NICE) has recently produced draft guidelines that set out broad principles on the care of patients living with multiple long-term conditions. These cover topics including the need to develop a tailored approach to patients' care, how to deliver this approach, understanding the significance of frailty in patients who have multiple long-term conditions, and the importance of reviewing medication. The guidelines do not attempt to make recommendations for every single possible combination of conditions or to cover the full range of circumstances that clinicians may encounter. However, they have the potential to act as a useful tool, provided that they are backed up by sufficient resources and the freedom for GPs to exercise their professional judgement.



Physical and mental multi-morbidities

The combination of long-term physical and mental health conditions is very common. The King's Fund has reported that 30% of people with a long-term condition also have a mental health condition and 46% of people with a mental health problem have a long-term physical illness³². The effect of mental health on physical illness is estimated to cost the NHS between £8 and £13 billion a year in England³³. Despite this there are few studies that review the effects of physical and mental health conditions on each other.

The interaction of long-term physical conditions and long-term mental health conditions poses particular challenges for the health care system. Whilst a patient may develop depression as a result of living with a long-term physical illness, depression itself can reduce a patient's ability to manage a physical condition. Research has demonstrated that 23% of patients with one chronic condition reported depression, compared to 40% of those with five or more conditions³⁴.

It is therefore paramount that mental health is recognised as being of equal importance to physical health when treating multimorbidity. Research by Coventry *et al.* (2015) demonstrates where depression and a long-term physical condition were treated collaboratively, rates of depression were 0.23 SCL-D13 points lower than when they were treated separately³⁵. The association between mental and physical health problems is also socially determined, with patients living in deprived areas having a much higher prevalence of mental health problems for a given number of physical health conditions (Barnett *et al.*, 2017, to be published). In addition, the ageing population means more people are living with dementia. Dementia can make management of a physical condition especially challenging due to forgetfulness or confusion, and if medication is not taken a patient's physical condition may decline.

Stigma around mental health issues is also a challenge when managing multimorbidity. Patients with physical conditions may choose not to disclose their mental health conditions, which can make treating their illnesses difficult for a GP. For example, at times it can be difficult for a GP to differentiate the signs of depression and signs of ageing³⁶.

Incentives which treat illnesses, not patients

Contractual mechanisms such as the Quality and Outcomes Framework (QOF) have not historically tended to incentivise a holistic approach to treating patients with multiple morbidities, focusing instead on single diseases. QOF is part of the General Medical Services contract, and rewards practices for treating individual long-term illness, for example asthma or diabetes. However, this framework makes no attempts to review, and reward, how well practices treat patients with multiple long-term conditions.

Under QOF large numbers of patients with multimorbidity are excluded, with individuals with 'high dependency and long-term conditions' accounting for 11.2% of exemptions in England and patients with 'mental health and neurology' accounting for 14.5%³⁷. While this at least avoids penalising practices for tailoring their approach to meet the needs of patients with multimorbidity, it also skews care and attention away from them.

Despite the intention of QOF being to reward practices for the quality of care, it does not always reflect the needs of patients. There is evidence to suggest that non-disease related outcomes may provide a more accurate indication of care quality. For example, relationship quality, self-management and consistency have been reported to predict mortality more accurately than biomedical measures of disease progression. This implies that focusing purely on disease related outcomes may not be the best way to treat, or measure, the quality of care patients with multimorbidity receive.



Actions to improve outcomes for people with multimorbidity



The increasing number of patients living with multimorbidity is a profound challenge for the NHS, and it is essential that measures are taken which harness the potential of general practice to improve outcomes for these patients. Alongside additional resources, action is still needed to better enable professionals to provide this patient group with truly whole person care. This will require cultural, clinical, contractual and organisational changes at the GP practice, local health system and national level.

Consultation length

A longer consultation length for patients with multiple long-term conditions is an approach that would enable these patients to have more time to discuss their complex conditions with their GP.

A study by Mercer *et al.* (2007) in Scotland found that patients in the most deprived areas had more problems to discuss (especially psychosocial), yet clinical encounter length was generally shorter – at 8.2 minutes on average compared to 8.6 minutes in more affluent areas³⁹. Further research in Scotland that looked into the impact of longer consultations in deprived areas found that an increase in consultation length for patients with complex needs to an average of 15 minutes was associated with enhanced levels of patient enablement⁴⁰. The study recommends that 15 minute consultations should be standard for patients with multimorbidity, and suggests that more integrated working would free up time to allow this to happen⁴¹.

The Deep End Project in Glasgow has taken these insights and supported practices to apply them by exploring a range of approaches to increase face-to-face clinical time with patients in deprived areas including offering longer consultations⁴².

Collaborative care and support planning

Collaborative care planning between a patient and their GP is widely recognised as being crucial to ensuring that patients with multimorbidity receive quality health and social care. The College has already developed a Care and Support Planning Programme⁴³, and the collaborative care and support planning approach has been recommended by the National Institute for Health and Care Excellence. Key components of this approach include:

- Shared decision making between patients and clinicians;
- Proactive goal setting that reflects what is most important to the patient;
- Use of multidisciplinary teams that draw on the expertise of a range of health and social care professionals as part of a coordinated approach;
- Longer consultations; and
- Continuity of care with a named professional.

In Scotland, a five-year programme of research (2009-2014) called 'Living Well with Multimorbidity' resulted in the development of a whole-system intervention (CARE Plus) for patients with multimorbidity in very deprived areas. This involved substantially longer consultations for targeted patients living with multimorbidity, relational continuity with their GP, a structured care plan based on the patients' own goals, and support and training for GPs⁴⁴. A feasibility cluster randomised controlled trial in Glasgow showed preliminary evidence of benefits in terms of quality of life and cost-effectiveness⁴⁵.



The 3D study is another example of how providing holistic care can improve the health outcomes of those with multiple long-term conditions. The research assesses the Dimensions of health, Drugs and Depression, with a view to addressing the issues of illness burden, treatment burden and lack of patient centred care. Interventions conducted to produce better health care outcomes of patients with multimorbidity were:

- Identification and prioritisation of patients with multimorbidity;
- Improving continuity by having a named GP;
- Longer consultation times;
- Person centred assessments every 6 months, as opposed to reviewing conditions on an individual basis, using an interactive template;
- Focusing on 3Ds; Dimensions of health (quality of life as well as disease outcomes); Depression and Drugs (addressing polypharmacy and medication adherence);
- Written care plans taking account of individuals' priorities and needs;
- Integration with a physician who is available to provide over the phone advice and co-ordinate hospital care; and
- Development of a sophisticated interactive computer template for patients with multimorbidity, removing the need to use a series of individual disease focused templates for these patients and steering clinicians to focus on patients' individual needs.

Medication review

Medication reviews are a good way for GPs to establish how what a person is prescribed compares with what is recommended, and are an opportunity for clinicians to reduce polypharmacy when possible. They are essential in informing patients about the purpose of their medication, identifying any side effects, and ensuring they are involved in decision making regarding their care. Often medication reviews can form part of the GP-patient consultation; however, patients with multiple long-term conditions would especially benefit from a dedicated medicine review consultation.

As GPs are currently facing unprecedented pressures, utilising the skills of clinical pharmacists may be an option for conducting medication reviews where prescribing is more complex. The College has previously welcomed the inclusion of pharmacists as part of the general practice team stating that pharmacists could work with GPs and other colleagues to resolve day to day medication issues and would be of particular benefit to those taking multiple medications. Whilst there is conflicting research on the benefits of pharmacists conducting medication reviews, Holland *et al.* (2007)⁴⁷ found that there was a slight decrease in the number of drugs patients were prescribed when medication reviews were conducted by pharmacists.



There are, however, barriers to medication reviews. Patients may feel that certain medication is a necessity or hope it will lead to improvements in the future, and patients can fear stopping medication if they have had negative experiences when stopping before, such as withdrawal effects⁴⁸. Additionally, GPs fear that they will be blamed for their actions in regard to deprescribing and more guidance is needed to assist GPs when ceasing to prescribe medication. Close collaboration between pharmacists and doctors regarding prescribing and medication reviews is also essential.

Multi-disciplinary teams

As we continue to develop new ways of working, multi-disciplinary teams are proving essential in delivering care for patients with multimorbidity.

Multi-disciplinary teams enable GPs to manage the care of those living with multiple long-term conditions more effectively by ensuring all aspects of a patient's care are accounted for. While GPs have a knowledge and understanding of numerous illnesses, and have undertaken extensive training to care for patients with complex needs, when caring for patients with multiple long-term conditions coordination with other professionals, particularly specialists, is paramount. Those working as part of a multi-disciplinary team take into consideration co-morbidities a patient may have and the GP is made aware of medication prescribed by other professionals, reducing the risk of any adverse drug reactions.

The Roland Commission identifies the opportunity to make use of a broader range of skills and roles in delivering care to patients with multimorbidity, including specialists, allied health professionals such as physiotherapists, and pharmacists working in GP practices and from premises in the community. It highlights the potential to roll out new roles such as medical assistants and calls for better access to training for practice nurses and improved integration between general practice and those working in community health services. It also advocates consultant-run email and telephone

helplines providing advice for GPs and other primary care professionals, and greater specialist participation in multi-disciplinary team meetings.

It is vital that the development of multi-disciplinary teams is done carefully and that professionals work together to ensure that continuity is not lost. Care must be taken that GPs are not deskilled by the development of multi-disciplinary teams. Access to comprehensive medical records is also an essential prerequisite for effective multi-disciplinary team working. Hospitals, GP out of hours services, emergency services, GP practices and clinicians conducting home visits all need to be able to share information in a timely fashion on aspects of care such as repeat medication, acute medication, laboratory results and discharge and outpatient letters.

Co-morbidity clinic in Grosvenor Surgery, Belfast

In Northern Ireland, Grosvenor Surgery trialled a co-morbidity clinic to provide holistic care for patients with multiple long-term conditions.

The practice recognised that many patients were on different chronic disease registers and were attending the practice multiple times for various clinics. They wanted to reduce the number of occasions patients had to attend the practice and increase patient satisfaction as a result, as well as improving health attitudes, perceptions and self management.

In reviewing their patient lists the practice identified patients who had either diabetes, Chronic Obstructive Pulmonary Disease (COPD) or Ischaemic Heart Disease (IHD), combined with 3 other long-term conditions. This produced a list of 55 patients.

The practice reviewed the medical notes of each of these patients and produced a timeline covering the care they would need in the future, including any potential secondary care they might need and also how they could receive care from other aspects of the community.

Patients were asked to attend the surgery for a week before the clinic for blood tests and an ECG, the results of which were reviewed at the clinic a week later.

The clinic itself consisted of the patient having a one hour appointment. The first 20 minutes of the appointment were spent with a nurse, followed by 40 minutes with the GP, with the option to have a medication review with the practice pharmacist. To deliver continuity, the same GPs would take part in the clinic each week.

Feedback from patients was that the clinic was successful and they valued having longer consultation times. GPs stated the clinic was onerous but worthwhile as it allowed them to discuss issues in greater detail with patients.

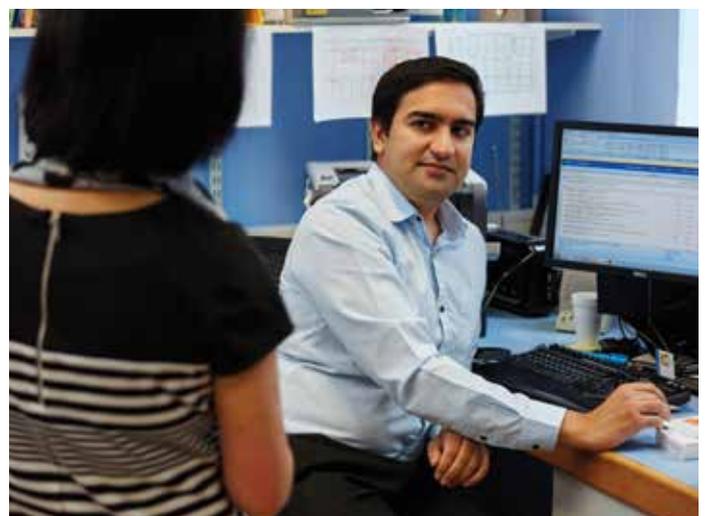
The primary/secondary care interface

Improvements in the interface between primary and secondary care offer the potential to deliver real gains in the quality of care received by those living with multiple long-term conditions.

As patients transition between primary and secondary care, and different sectors of the healthcare system, information can be lost and healthcare professionals may not be aware of the actions and decisions taken by those from other parts of the system.

An enhanced role for general practice in conducting more 'in reach' could assist in bridging the gap between primary and secondary services, and in ensuring that patients are not treated in hospital unnecessarily. This consists of primary and secondary healthcare professionals collaborating to assess patients and plan their care in the secondary care setting, and is likely to be especially beneficial in providing continuity for patients with multiple long-term conditions. GPs working in this role could conduct geriatric assessments, which have been proven to reduce admission to residential care from hospital, and conduct individual discharge planning from the moment a patient is admitted to hospital.

Electronic health record systems have the potential to develop and shape new ways of clinical working at the interface between primary and secondary care. Advanced health record systems could search for previous changes in medication, alert GPs and specialists to potential adverse medical interactions and also calculate risks versus benefits for certain patient interventions⁴⁹. In Northern Ireland, the Health and Social Care Board is developing IT systems for risk stratification that will interrogate patient records and identify patients with multimorbidity, polypharmacy and their statistics. Northern Irish GPs, hospitals and out of hours services also already have access to Electronic Health Care records. This allows them to view patient demographics, repeat and recent acute medication, allergy records, blood and radiological results and hospital discharge and clinic letters.



Leeds interface geriatrician service

At Leeds Teaching Hospitals NHS Trust and Leeds Community Healthcare Trust interface geriatricians are working to improve the care of patients living with multiple long-term conditions.

They attend integrated health and social care team meetings on a monthly basis, working alongside district nurses, GPs, social workers, occupational therapists and physiotherapists to deliver whole patient care. They make home visits and attend to intermediate care patients, as well as educating others on caring for patients with multiple long-term conditions.

Additionally, the service consists of a nurse-led patient care advice Line that gives GPs and community staff access to speciality beds and advice from geriatricians working at the interface.

Commissioning Enhanced Care Pathways in Wandsworth – integrated care for frail older people

Wandsworth is taking a proactive approach to identifying patients that will especially benefit from integrated care. GPs, community services and social care are working together to identify an initial cohort of 500 frail older people that are at highest risk of unplanned hospital admissions who will receive support via an enhanced care pathway.

Geriatricians will conduct single assessments to ensure patient care is holistic, taking into account medical, social, functional and mental health needs and care plans, with clear measurable outcomes.

Patients with urgent care needs will benefit from a rapid response service and where clinically appropriate enhanced care will be provided at home to prevent unnecessary hospital admissions. Where patients live in care homes, GPs will provide proactive care supported by a community geriatrician.

When patients are admitted to hospital community services, GPs and social care will adopt integrated discharge planning to reduce the amount of time medically fit patients stay in hospital. This will consist of identifying patients' ongoing care needs within their home environment and ensuring they make optimum use of available support services.

Commissioning for patients with complex health needs

The current system of designing care pathways around single diseases simply does not work for patients with multiple conditions. When commissioning care, more emphasis needs to be placed on the fact that a large proportion of patients now have multiple long-term conditions, and this will continue to rise in years to come. Future systems of commissioning healthcare should support the integration of services, acknowledging that current budgets are fragmented, in order to meet the needs of patients. One means of doing this being rolled out in England is through primary care co-commissioning.



Education and Training

In addition to recruiting more doctors and nurses to general practice, those in training need to gain more experience of caring for patients with multimorbidity, and this needs to start from undergraduate medical training onwards. Education needs to move away from the current approach of focusing on single diseases and move towards holistic care, preferably in the patient's own setting and context, with a focus on influencing factors such as frailty. Training should ensure health care professionals recognise that the needs of the patient are the priority and not the illness itself, alongside ensuring that the patient is involved in making shared decisions which enable them to self-manage.

Elements of the multimorbidity educational curriculum should include research-led evidence-based findings from studies into multimorbidity, development of new clinical guidelines that look at clinical care for patients with more than one medical problem, and a greater emphasis on the effectiveness of medications and their interactions when patients are faced with needing to take many drugs. Trainees also need more practice in negotiating management and treatment plans with patients, better understanding of the issues affecting compliance and how to rationalise medication regimens to ensure optimum uptake and reduce over medicalisation.

National bodies responsible for education across the UK have an important role to play in reviewing existing curricula for the training of professionals who will be caring for those with multimorbidity, and making changes where necessary. All foundation doctors should spend a period in general practice to encourage awareness in all specialties of multimorbidity and its management. The RCGP has also argued for an extension in the length of postgraduate GP training from three to four years, to enable GPs to gain greater experience of aspects of healthcare such as child health, mental health and caring for patients with multiple long-term conditions. In the meantime the MRCGP curriculum will also need to be kept under review to ensure it continues to align with current UK patient needs and consulting behaviour, including the use of IT in the consultation and the facilitation of multi-disciplinary teams in managing patients. GPs will also need to gain a greater understanding of patient demography and multimorbidity, and of polypharmacy.

Research tailored to patients living with multimorbidity

In order for the health system to tailor care for patients living multiple long-term conditions more research is needed.

Research to establish a definition of multimorbidity that encompasses all aspects of a patient's symptoms, both in terms of illnesses and psychological impacts, is needed to understand the varying quality of life these patients can experience. The current lack of a widely accepted definition is acting as a barrier to consistent, holistic care for all patients. Understanding factors that influence a person's likelihood of living with multimorbidity or impact the quality of care they receive is also necessary. Whilst research into the prevalence of multimorbidity in elderly patients and areas of high deprivation is more established, research into the experience of certain ethnic groups, those with poor social support and those with drug or alcohol problems is still in its infancy⁵⁰. Understanding these influencing factors in greater detail will enable the health care system to be tailored to the increasing number of patients living with multiple long-term conditions.

As well as analysing the causes and effects of multimorbidity, more research into the interventions that are most effective in improving outcomes for patients with multimorbidity is urgently needed. This should encompass both drug effectiveness and service delivery and design, focussing in particular on what can be done to improve treatment for the most common clusters of conditions.



Improved information systems and decision making tools

More sophisticated information and guidance needs to be developed to ensure patients with multimorbidity receive adequate care. This needs to be clearer on the benefits and risk of interventions for patients with numerous conditions, and be accompanied by decision-making tools that enable the doctor and patient to tailor care to the individual's preferences.

The introduction of the forthcoming NICE guidance will provide clinicians with a broad set of overarching principles for treating patients with multimorbidity. The draft guidelines also discuss the importance of frailty being assessed alongside multimorbidity and the need for GPs to explain the potential benefits and side effects of treatments, as well as offering non-pharmacological solutions. It may also be possible to develop more detailed guidelines that address some of the most common combinations of disease, or synthesise relevant advice based around presenting symptoms in a similar fashion to NICE's recent cancer guidelines. However, realistically there will never be a guideline that is tailored to every patient and set of circumstances.

Technological developments could also support doctors when prescribing multiple medications by highlighting potential risks⁵¹. Online systems recording numbers to treat, duration for which medication should be taken, or a hierarchy to show the most important medications could ensure that patients have the greatest chance of positive health outcomes. NICE recommends the use of decision support software such as STOP START can assist in improving patient outcomes⁵².

Furthermore, the NHS England programme Patient Online could support patients living with multiple long-term conditions. Patient Online offers more online services to patients such as access to coded information records, appointment booking and ordering repeat prescriptions, all of which would support patients in playing an active role in their care.

NHS Scotland Polypharmacy Guidance App

In Scotland, the NHS and the Scottish Government have developed a decision making tool designed to aid those caring for patients with multiple long-term conditions.

The app identifies seven steps to provide a clear structure for the medicine review process. These are focused on the needs of the patient and encourage communication between doctor and patient to identify non-pharmacological solutions in addition to medicine related ones.

The app is intended to increase knowledge and understanding of patients and doctors, and includes case studies to demonstrate the importance of holistic care.

Whilst the app is still in its early stages it is these types of tools that will support GPs to make informed decisions and will simplify the complex care delivered to patients living with multiple long-term conditions.

Already in Scotland the QOF contractual requirement has been dropped. From April 2016 practices will form 'Quality Clusters' to deliver a model of quality that is peer based and has professional values and patient outcomes at its core. It is intended that the process of quality improvement will be better suited to the complex needs of people with multimorbidity. In addition, replacement of QOF has also been trialled in some parts of England - see below for more detail.

Somerset Practice Quality Scheme

NHS Somerset CCG has already trialled a replacement to QOF in the form of the Somerset Practice Quality Scheme (SPQS). The scheme developed as practices felt that QOF did not incentivise best practice. Practitioners reported that due to being single disease focused, QOF impinged on person centred care for patients with multiple long-term conditions. As 25% of those over 80 years old in Somerset have three or more long term conditions, this was something that Somerset CCG wanted to tackle, with 55 out of 75 practices choosing to take up the offer to leave QOF.

The removal of QOF reporting allowed practices to innovate, for integration to improve and for organisational change to begin to develop. The SPQS practices conducted longer consultations for patients living with multiple long-term conditions. These consultations were focused on the needs of the individual and aimed to reduce the number of appointments patients needed, as well as reducing the amount of letters they received regarding each of their conditions. Practices also adopted multi-disciplinary team working to provide holistic care, which improved coordination within and across sectors.

Patients reported that they had positive experiences in relation to continuity and that their ability to self manage their conditions had increased as a result of the Somerset Practice Quality Scheme. Practitioners felt they were providing more holistic care to their patients and highlighted that one of the main barriers to caring for people with multiple long-term conditions was communication issues hampered by lack of effective IT systems.

Appropriate incentives

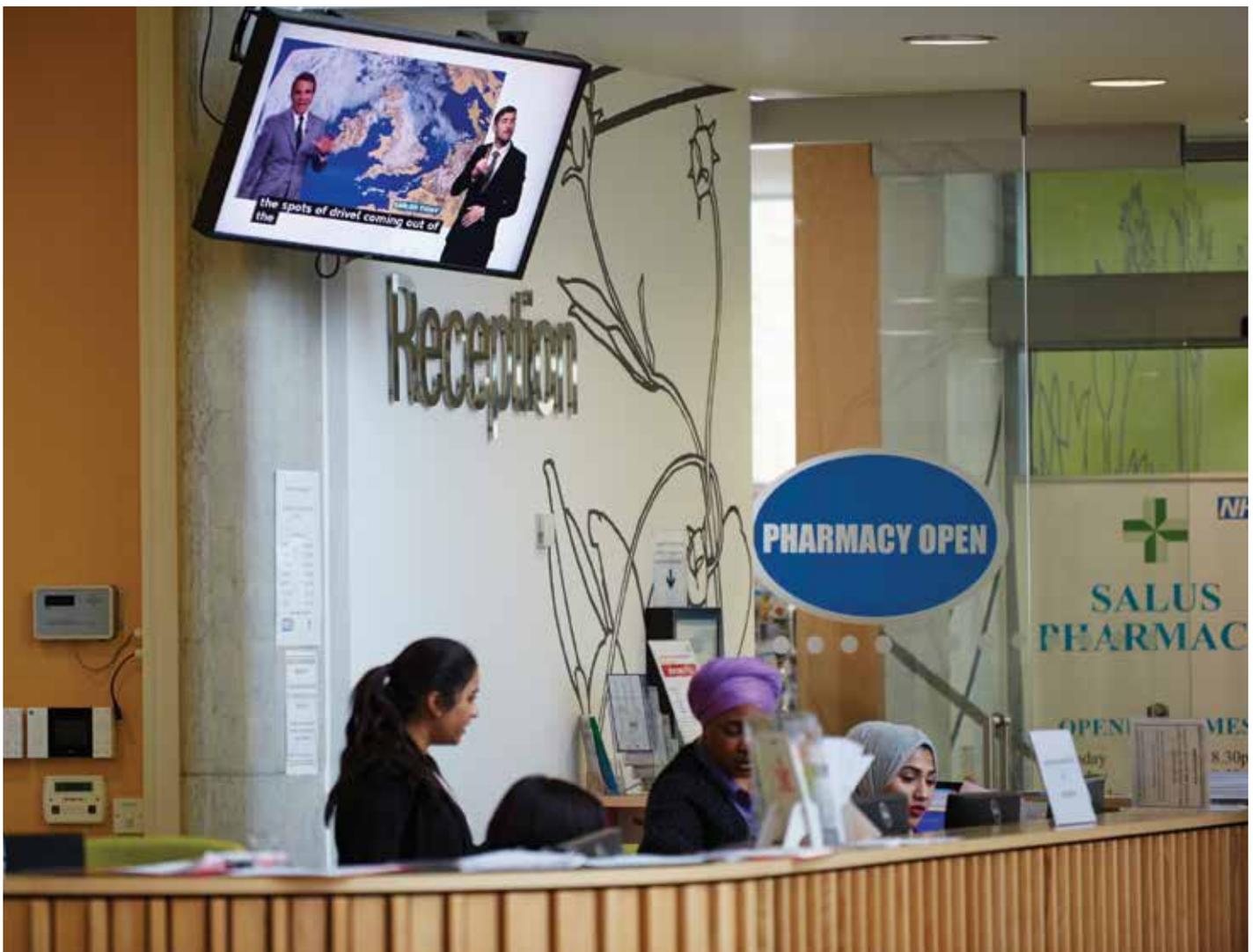
While the evidence is mixed regarding the impact of QOF in improving patient outcomes, it is essential that, to the extent that general practice is subject to financial incentives, these are geared to ensuring that the needs of patients living with multiple long-term conditions are prioritised. Changes to the current QOF indicators are essential in caring for those living with multimorbidity. These alternatives should not penalise clinicians for tailoring care towards individual patients but support them in using their professional judgement, and should easily enable development and innovation, as well as collaboration with the patient themselves. The table below outlines three potential approaches together with their possible advantages and disadvantages:

No financial incentives	Removal of current QOF indicators and the introduction of new process based financial incentives	Removal of current QOF indicators and the introduction of new outcomes based financial incentives
<ul style="list-style-type: none"> + Bureaucracy and box ticking processes will be removed - Practices may not be incentivised to prioritise the needs of patients living with multiple long-term conditions 	<ul style="list-style-type: none"> + Aspects of care such as care planning will be prioritised - This could become another box ticking exercise + How well a patient feels their care enables them to live a better life will be prioritised 	<ul style="list-style-type: none"> - This could become another box ticking exercise - Measurable outcome based indicators that reflect general practice care may be difficult to develop - Outcomes may not be wholly within GPs' control e.g. environmental factors



Resourcing implications

In order to provide quality care for the increasing number of patients living with multiple long-term conditions, more needs to be done to address the resourcing implications for general practice. General practice is currently facing a lack of GPs, with the College currently calling for 10,000 more GPs to be recruited across the whole of the UK. These GPs are desperately needed to provide care for patients with more complex needs. If fully implemented, the GP Forward View in England will go a long way towards meeting this aim; however, as the general practice workforce increases, it will be important to ensure that it is deployed in ways that will improve care for patients with multi-morbidity. As well as being more clinically effective, this will also lead to better financial outcomes for the NHS in the long-term, and this needs to be reflected in decision making frameworks for resource allocation within the NHS.



Recommendations

The following recommendations aim to prioritise the care of patients living with multiple long-term conditions and should be implemented by general practice and the wider health service:

Recognise the importance of GPs as the lead physicians providing generalist care to patients with multiple conditions in the community.

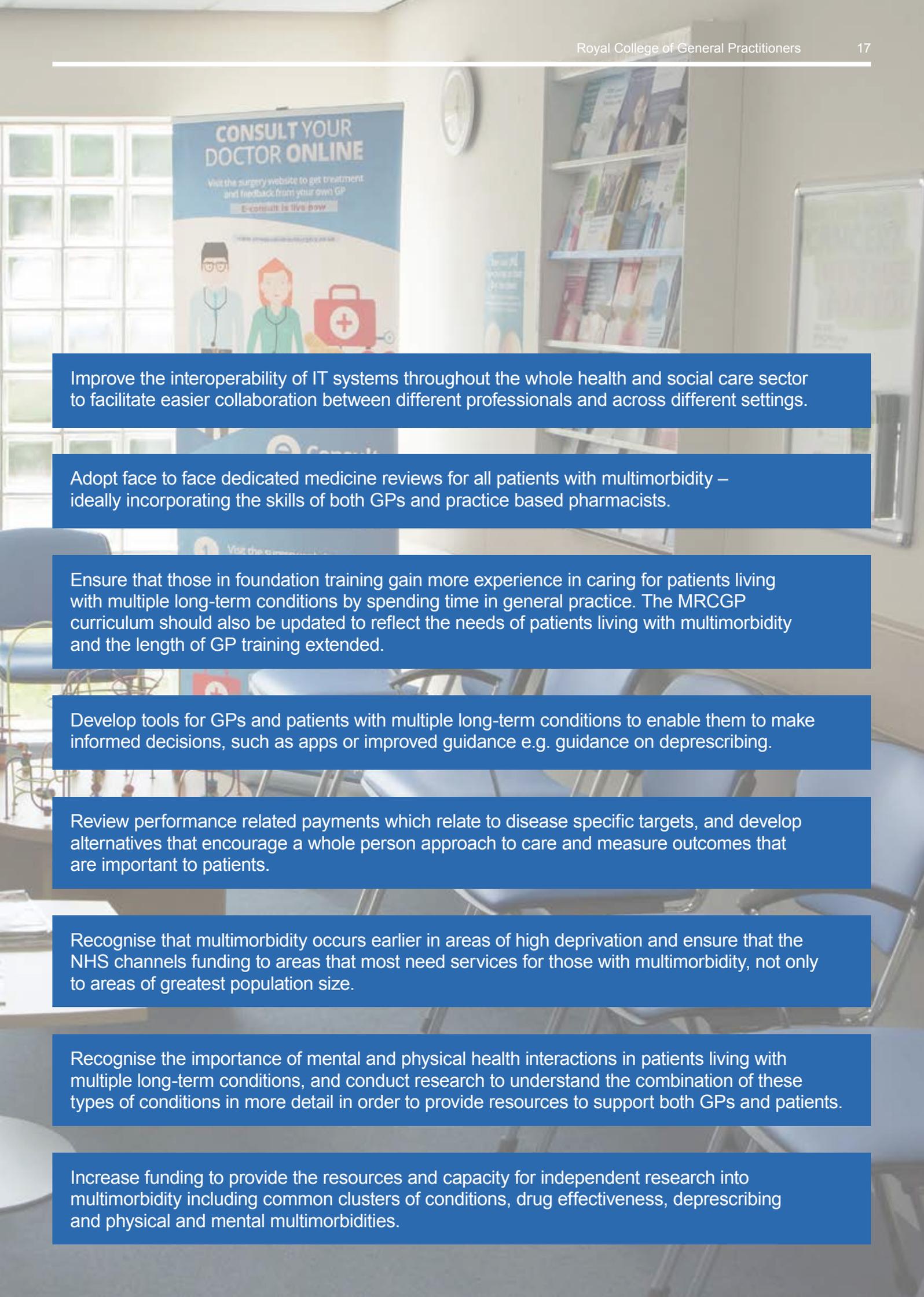
Prioritise longer consultations for those with multimorbidity to provide them with more time to discuss the complexities of their multiple conditions.

Give patients living with multiple long-term conditions the opportunity to form on-going relationships with those providing their care in general practice. Practices should monitor the proportion of patients with multiple long-term conditions receiving continuity of care and take steps to improve this when necessary.

Embed care planning for those living with multimorbidity and support greater collaboration between the range of professionals involved, aiming for coordinated holistic care.

Develop multidisciplinary teams around general practice to ensure that GPs are able to gain rapid access to the care that patients with multimorbidity need e.g. mental health services, district nursing and support for social care needs.

Improve communication at the interface of primary and secondary care to ensure patients do not receive fragmented care e.g. through use of in-reach teams and advice lines for GPs and other primary care staff.



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Improve the interoperability of IT systems throughout the whole health and social care sector to facilitate easier collaboration between different professionals and across different settings.

Adopt face to face dedicated medicine reviews for all patients with multimorbidity – ideally incorporating the skills of both GPs and practice based pharmacists.

Ensure that those in foundation training gain more experience in caring for patients living with multiple long-term conditions by spending time in general practice. The MRCGP curriculum should also be updated to reflect the needs of patients living with multimorbidity and the length of GP training extended.

Develop tools for GPs and patients with multiple long-term conditions to enable them to make informed decisions, such as apps or improved guidance e.g. guidance on deprescribing.

Review performance related payments which relate to disease specific targets, and develop alternatives that encourage a whole person approach to care and measure outcomes that are important to patients.

Recognise that multimorbidity occurs earlier in areas of high deprivation and ensure that the NHS channels funding to areas that most need services for those with multimorbidity, not only to areas of greatest population size.

Recognise the importance of mental and physical health interactions in patients living with multiple long-term conditions, and conduct research to understand the combination of these types of conditions in more detail in order to provide resources to support both GPs and patients.

Increase funding to provide the resources and capacity for independent research into multimorbidity including common clusters of conditions, drug effectiveness, deprescribing and physical and mental multimorbidities.

References

- 1 Salisbury C, Valderas J. M, Montgomery A. A. (2011). Epidemiology and impact of multimorbidity in primary care: a retrospective cohort study. *British Journal of General Practice*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3020068/>
- 2 Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. (2012). Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross sectional study. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22579043>
- 3 Salisbury C, Valderas J. M, Montgomery A. A. (2011). Epidemiology and impact of multimorbidity in primary care: a retrospective cohort study. *British Journal of General Practice*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3020068/>
- 4 Mercer S, Guthrie B, Furler J, Watt G. C. M., Tudor Hart J. (2012). Multimorbidity and the inverse care law in primary care. *British Medical Journal*. Available at: <http://www.bmj.com/content/344/bmj.e4152>
- 5 Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. (2012). Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross sectional study. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22579043>
- 6 Department of Health. (2012). *Long term conditions compendium of information*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216528/dh_134486.pdf
- 7 Van den Akker and Muth C. (2014). 'How common is multimorbidity?' In Mercer S. W, Salisbury C and Forton M edited *ABC of Multimorbidity*. Wiley Blackwell
- 8 Department of Health. (2012). *Long term conditions compendium of information*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216528/dh_134486.pdf
- 9 Mair S F, May C R. (2014). Thinking about the burden of treatment. *The BMJ*. Available at: <http://www.bmj.com/content/349/bmj.g6680>
- 10 Mair S F, May C R. (2014). Thinking about the burden of treatment. *The BMJ*. Available at: <http://www.bmj.com/content/349/bmj.g6680>
- 11 O'Brien R, Wyke S, Watt G, Guthrie B, Mercer SW. The 'everyday work' of living with multimorbidity in socio-economically deprived areas of Scotland. *Journal of Comorbidity* 2014,9:62
- 12 Van den Akker and Muth C. (2014). 'How common is multimorbidity?' In Mercer S. W, Salisbury C and Forton M edited *ABC of Multimorbidity*. Wiley Blackwell
- 13 Van den Akker and Muth C. (2014). 'How common is multimorbidity?' In Mercer S. W, Salisbury C and Forton M edited *ABC of Multimorbidity*. Wiley Blackwell
- 14 Violan C, Foguet-Boreu Q, Flores-Mateo G, Salisbury C, Blom J, Freitag M, Glynn L, Muth C, Valderas J. M. (2014). Prevalence, Determinants and patterns of multimorbidity in primary care: A systematic Review of Observational Studies. *PLoS One*. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/25048354>
- 15 Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. (2012). Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross sectional study. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22579043>
- 16 McLean G , Gunn J, Wyke S, Guthrie B, Watt GCM, Blane DN, Mercer SW. (2014). The influence of socioeconomic deprivation on multimorbidity at different ages. *British Journal of General Practice*; 64 (624), e440-7. Available at: <http://bjgp.org/content/64/624/e440>.most-cited
- 17 Royal College of General Practitioners. (2016). Continuity of care paper in modern day general practice. Available at: <http://www.rcgp.org.uk/policy/rcgp-policy-areas/~media/Files/Policy/A-Z-policy/RCGP-Continuity-of-care-in-modern-day-general-practice-2016.ashx>
- 18 Hobbs F. D. R, Bankhead C, Mukhtar T, Stevens S, Perera-Salazar R, Holt T, Salisbury C. (2016). Clinical workload in UK primary care: a retrospective analysis of 100 million consultations in England, 2007 -14. *The Lancet*. Available at: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)00620-6/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)00620-6/fulltext)
- 19 Salisbury C, Procter S, Stewart K, Bowen L, Purdy S, Ridd M, Valderas J, Blakeman T, Reeves D. (2013). The content of general practice consultations: a cross sectional study based on video recordings. *British Journal of General Practice*. Available at: <http://bjgp.org/content/63/616/e751>.most-read
- 20 BMA. (2015). National Survey of GPs. The Future of General Practice 2015. Available at: <http://bma.org.uk/working-for-change/negotiating-for-the-profession/bma-general-practitioners-committee/surveys/future-of-general-practice>
- 21 Mercer SW, O'Brien R, Fitzpatrick B, Higgins M, Guthrie B, Watt G, Wyke S. The development and optimisation of a primary care-based whole system complex intervention (CARE Plus) for patients with multimorbidity living in areas of high socioeconomic deprivation. *Chronic Illness*. Published online before print April 10, 2016, doi: 10.1177/1742395316644304
- 22 Bleich SN, Sherrod C, Chiang A, Boyd C, Wolff J, DuGoff E, et al. (2015). Systematic Review of Programs Treating High-Need and High-Cost People With Multiple Chronic Diseases or Disabilities in the United States, 2008–2014. *Prev Chronic Dis*. Available at: http://www.cdc.gov/pcd/issues/2015/15_0275.htm
- 23 Greenhalgh K., Howick J and Maskrey N. (2014). Evidence based medicine: a movement crisis? *British Medical Journal*. Available at: <http://www.bmj.com/content/348/bmj.g3725>
- 24 Smith S, Fortin M, Hudon C, O'Dowd T (2012). Managing patients with multimorbidity: systematic review of interventions in primary care and community settings. *British Medical Journal*. Available at: <http://www.bmj.com/content/345/bmj.e5205>
- 25 Greenhalgh K., Howick J and Maskrey N. (2014). Evidence based medicine: a movement crisis? *British Medical Journal*. Available at: <http://www.bmj.com/content/348/bmj.g3725>
- 26 The King's Fund. (2013). *Polypharmacy and medicines optimisation*. Available at: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/polypharmacy-and-medicines-optimisation-kingsfund-nov13.pdf

- 27 Wallace E, Salisbury C, Guthrie B, Lewis C, Fahey T, Smith S. (2015). Managing patients with multimorbidity in primary care. *British Medical Journal*. Available at: <http://www.bmj.com/content/350/bmj.h176>
- 28 Van den Akker and Muth C. (2014). 'How common is multimorbidity?' In Mercer S. W, Salisbury C and Forton M edited *ABC of Multimorbidity*. Wiley Blackwell
- 29 Davies E., Green C. F., Taylor S., Williamson P. R., Mottram D. R., Pirmohamed M. (2009). Adverse drug reactions in hospital in-patients: a prospective analysis of 3695 patient-episodes. *PLoS One*
- 30 Payne R. A and Avery A. (2011). Polypharmacy: one of the greatest prescribing challenges in general practice. *British Journal of General Practice*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3026143/>
- 31 NICE. (2014). *Osteoarthritis: care and management*. Available at: <https://www.nice.org.uk/guidance/cg177/chapter/2-Research-recommendations>
- 32 King's Fund. (2012). *Long term conditions and mental health*. Available at: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/long-term-conditions-mental-health-cost-comorbidities-naylor-feb12.pdf
- 33 King's Fund. (2012). *Long term conditions and mental health*. Available at: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/long-term-conditions-mental-health-cost-comorbidities-naylor-feb12.pdf
- 34 Wallace E, Salisbury C, Guthrie B, Lewis C, Fahey T, Smith S. (2015). Managing patients with multimorbidity in primary care. *British Medical Journal*. Available at: <http://www.bmj.com/content/350/bmj.h176>
- 35 Coventry P, Lovell K, Dickens C, Bower P, Chew-Graham C, McElvenny D, Hann M, Cherrington A, Garrett C, Gibbons C, Baguley C, Roughley K, Adeyemi I, Reeves D, Waheed W and Gask L. (2015). Integrated primary care for patients with mental health and physical multimorbidity: cluster randomised controlled trial of collaborative care for patients with depression comorbid with diabetes or cardiovascular disease. *British Medical Journal*. Available at: <http://www.bmj.com/content/350/bmj.h638>
- 36 Bower P, Coventry P, Gask L and Gunn J. (2014). 'Multimorbidity and mental health' In Mercer S. W, Salisbury C and Forton M edited *ABC of Multimorbidity*. Wiley Blackwell
- 37 Quality and Outcomes Framework. (2015). *Quality and Outcomes Framework – Prevalence Achievements and Exceptions Report*. Available at: <http://www.hscic.gov.uk/catalogue/PUB18887/qof-1415-Report%20v1.1.pdf>
- 38 School of Primary Care Research. (2015). *Multimorbidity and Ageing*. Available at: <http://www.spcr.nihr.ac.uk/research-old/multimorbidity-and-ageing>
- 39 Mercer S, W., Watt, G. C. M. (2007) The Inverse Care Law Clinical Primary Care Encounters in Deprived and Affluent Areas of Scotland. *Annals of Family Medicine*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2094031/>
- 40 Mercer S. W., McConnachie A and Watt G.(2007). More time for complex consultations in a high deprivation practice is associated with increased patient enablement. *British Journal of General Practice*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2084135/>
- 41 Mercer S, W., Watt, G. C. M. (2007). The Inverse Care Law@ Clinical Primary Care Encounters in Deprived and Affluent Areas of Scotland. *Annals of Family Medicine*. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2094031/>
- 42 Watt G. (2011). *GPs at the Deep End. Connecting with general practice improving public health. Findings of the Primary Care Observatory and Deep End projects*. Available at: http://www.gcph.co.uk/assets/0000/2586/FINAL_VERSION_for_publication_without_financial_statement.pdf
- 43 Royal College of General Practitioners. Care and support planning (2014). Available at: <http://www.rcgp.org.uk/care-planning>
- 44 Mercer SW, O'Brien R, Fitzpatrick B, Higgins M, Guthrie B, Watt G, Wyke S. (2016). The development and optimisation of a primary care-based whole system complex intervention (CARE Plus) for patients with multimorbidity living in areas of high socioeconomic deprivation. *Chronic Illness* (Accepted Feb 2016)
- 45 Mercer SW, O'Brien R, Fitzpatrick B, Higgins M, Guthrie B, Watt G, Wyke S. The development and optimisation of a primary care-based whole system complex intervention (CARE Plus) for patients with multimorbidity living in areas of high socioeconomic deprivation. *Chronic Illness*. Published online before print April 10, 2016, doi: 10.1177/1742395316644304
- 46 University of Bristol. (2016). *3D Study*. Available at: <http://www.bristol.ac.uk/social-community-medicine/projects/3d-study/research/intervention/>
- 47 Holland R, Desborough J, Goodyer L, Hall S, Wright D, Loke YK. (2008). Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta analysis. *British Journal of Clinical Pharmacology*. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/18093253>
- 48 Reeve E, To J, Hendrix I, Shakib S, Robert MS, Wiese MD. (2013). Patient barriers to and enablers of deprescribing: a systematic review. *PubMed Health*. Available at: <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0059385/>
- 49 Dawes M. (2010). Comorbidity: we need a guideline for each patient not a guideline for each disease. *Family Practice*. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/20081211>
- 50 Mercer S W, Smith S M, Wyke S, O'Dowd T, Watt G C M. (2009). Multimorbidity in primary care: developing the research agenda. *Family Practice*. Available at: <http://fampra.oxfordjournals.org/content/26/2/79.full.pdf+html>
- 51 Marengoni A and Onder G. (2015). Guidelines, polypharmacy and drug-drug interactions in patients with multimorbidity. *British Medical Journal*. Available at: <http://www.bmj.com/content/350/bmj.h1059>
- 52 NICE (2015). Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes. Available at: <https://www.nice.org.uk/guidance/ng5/resources/medicines-optimisation-the-safe-and-effective-use-of-medicines-to-enable-the-best-possible-outcomes-51041805253>



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