The power of connection:

Strengthening health policy responses to cardiovascular, renal and metabolic diseases

FUTURE HEALTH

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ABOUT THIS REPORT

This research paper examines how Governments and health systems can build more interconnected health policies and services to better meet the changing needs of patients.

Ageing populations and rises in rates of chronic diseases and multimorbidity have increased levels of disease complexity and health service costs. However many approaches to health policies are still focused on single conditions.

Policymakers increasingly recognise the need to change health systems to better meet this population health need. But change in health systems is hard. Particularly as many countries face challenging economic circumstances.

This paper – commissioned by Boehringer Ingelheim – looks at the opportunity for countries in prioritising action in addressing cardiovascular renal and metabolic (CRM) conditions, a set of interconnected conditions where need and impact is rising sharply.

The research is in three parts:

- Exploring changing population health needs, particularly the rising burden of multimorbidity and CRM conditions in particular and their impact on health systems
- Reviewing headline snapshots and examples of approaches policymakers are taking across several geographies to better meet the needs of CRM patients and identifying the opportunities for change
- Setting out enablers and actions for policymakers to deliver more interconnected policies for patients with CRM conditions

ABOUT THE AUTHOR

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He was previously a Senior Fellow at Policy Exchange, a UK based think tank and from 2018-19 was Special Advisor to the UK Secretary of State for Health and Social Care.

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EXECUTIVE SUMMARY

Great progress has been made over the last few decades in the management and treatment of major diseases including cancer and cardiovascular disease (CVD).

However the burden and impact of these noncommunicable diseases (NCDs) is still rising quickly.

Populations are ageing and more people are now living with more than one condition. This is placing strains on healthcare systems that are primarily designed around disease specific pathways and approaches to care. It also comes with a growing and broader economic cost at a time when many countries are facing financial challenges.

Across the world countries have collaborated and established through the Sustainable Development Goals ambitions for change. Many countries have initiated their own actions to reduce the impact of NCDs.

However despite such efforts progress to date is off track towards such goals and ambitions. Analysis for this research finds that 4 in 5 countries are set to miss the target of reducing premature mortality from major diseases by 2030. Faster action is now needed.

This paper argues that one of the reasons why greater progress has not yet been made is that healthcare policies to tackle major NCDs remain disconnected.

It highlights the need for addressing this by identifying particular disease clusters of interconnecting conditions where the impact is highest and then building policies that are more reflective of these clusters.

One of the major clusters that policymakers should prioritise in this approach is tackling cardiovascular, renal and metabolic (CRM) conditions. These are an interconnected set of conditions that contribute to 20 million deaths annually and place a growing burden on healthcare systems and societies.[1]

Cardiovascular disease (CVD) is the world's biggest killer today and is set to remain so in 2050. One of the reasons for this is the rising numbers affected by interconnected CRM conditions including liver and kidney diseases – which are driving increases in the rates of CVDs. Liver diseases are associated with a higher risk of cardiovascular events and most patients with progressive Chronic Kidney Disease (CKD) die before reaching kidney failure, because of the high death rate attributable to CVD.[23]

Tackling this health challenge, requires an approach that addresses the risk factors and related conditions in a co-ordinated and interconnected way across obesity, diabetes, liver disease and CKD.

The paper identifies three levels of opportunity for delivering more interconnected policies for CRM conditions across national health plans, CVD prevention plans and in updating relevant clinical guidelines and health service models.

Whilst there is some evidence of countries looking to implement more interconnected policies to improve outcomes for CRM, the research shows that efforts to date have often been focused on more narrow forms of interconnectedness – for example between two conditions (e.g. diabetes and CVD) or a single risk factor (e.g. obesity and CVD), rather than a more fully and genuinely interconnected model.

Delivering this more interconnected model to policy development is highly complex and challenging. Health systems and their policies and pathways are primarily designed around particular conditions, specialisms and sub-specialisms.

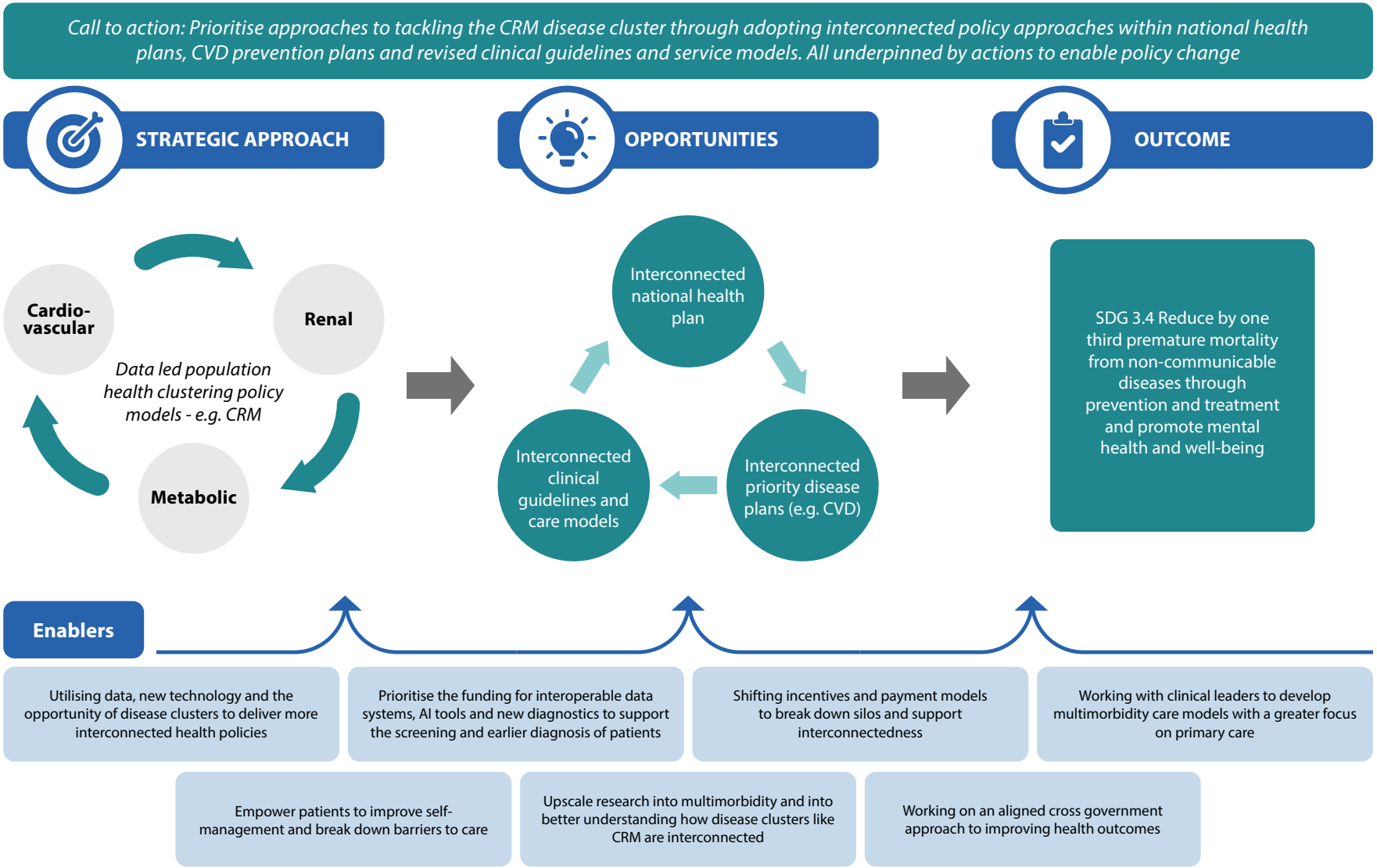
To move to this more interconnected model of policy making will require adopting a set of 'enablers for change'. The research identifies seven enablers to deliver more interconnected policies:

- Utilising data and new technology to identify priority disease clusters such as CRM
- Invest in new data systems, AI tools and new diagnostics to support improved population health and the earlier detection and diagnosis of patients with CRM conditions through screening
- Shift incentives and payment models to support interconnectedness around the needs of CRM patients
- Partnership with clinical leaders to develop multimorbidity care models with a greater focus on primary care management and joined-up care for patients with CRM conditions
- Empower patients with CRM conditions to improve self-management and break down barriers to care
- Upscale research into multimorbidity and into better understanding how disease clusters like CRM are interconnected
- Work on an aligned cross government approach to improving health outcomes, including for those with CRM conditions

By unlocking these seven enablers for change, new progress can be made in pursuing interconnected approaches to tackling CRM across the three policy opportunities of: national health plans, CVD prevention strategies and in the design of guidelines, pathways and models of care.

By prioritising such interconnected action on CRM accelerated progress can be made towards the goals of reducing the impact of NCDs, helping to improve patient outcomes, reduce pressures on health services and support wider economic benefits.

Figure 1: Delivery framework for building more interconnected CRM policy



CHAPTER 1: THE RISE AND IMPACT OF NCDs AND MULTIMORBIDITY

The growing impact of NCDs

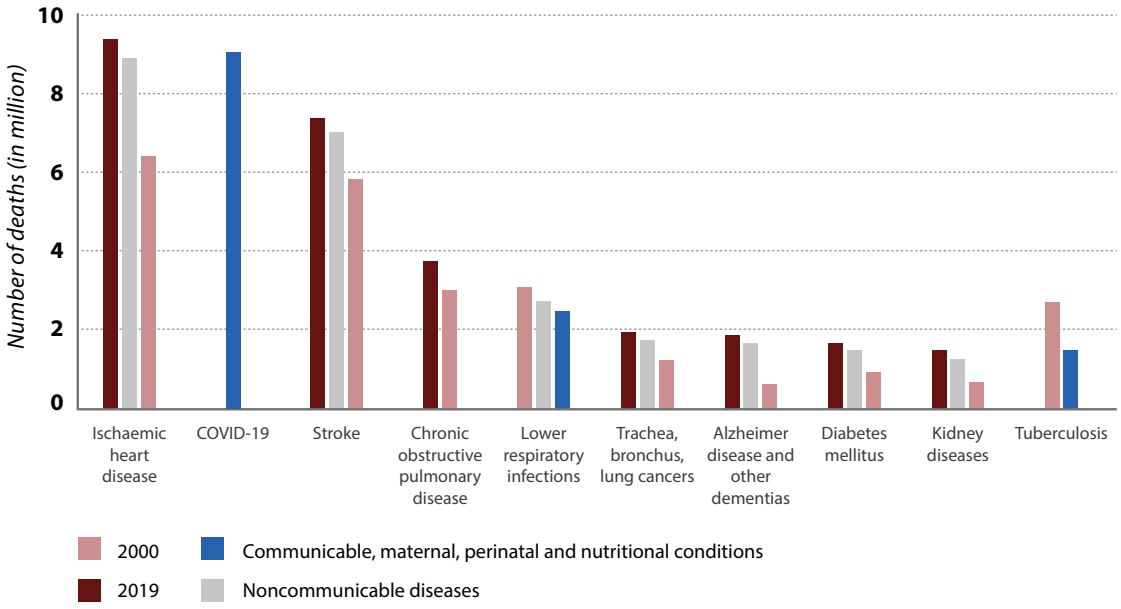
Noncommunicable diseases (NCDs) tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors. They are not spread directly from person to person and are also known as chronic diseases.[4]

The top five occurring NCDs include cardiovascular disease (CVD), cancer, diabetes, chronic respiratory diseases and mental health.[5] These are followed by eye conditions, oral diseases, obesity, chronic kidney diseases (CKD) and thyroid conditions.[6]

NCDs are the leading cause of mortality worldwide. They are responsible for 75% of all deaths and 18 million premature deaths a year (before the age of 70).[7] Annual deaths resulting from NCDs are projected to rise from 41 million to 52 million by 2030.[8] NCDs disproportionately affect people in low- and middle-income countries, where nearly three quarters of global NCD deaths (32 million) occur.[9]

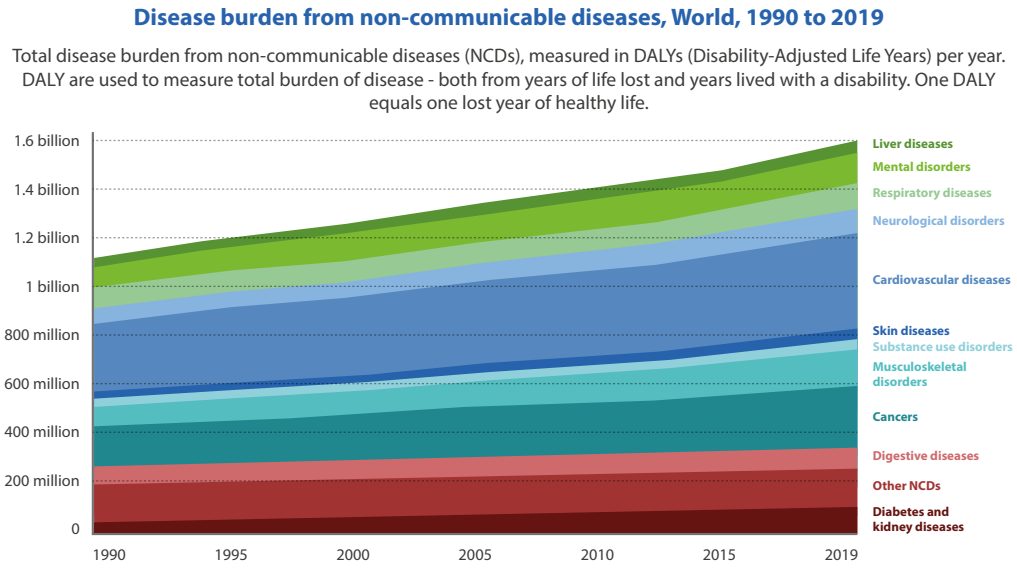
As set out in figure 2 below, the biggest killer is ischaemic heart disease, responsible for 13% of the world's total deaths. The number of deaths from ischaemic heart disease has risen by 2.7 million since 2000 to 9.1 million deaths in 2021.

Figure 2: WHO leading causes of death globally in 2021[10]



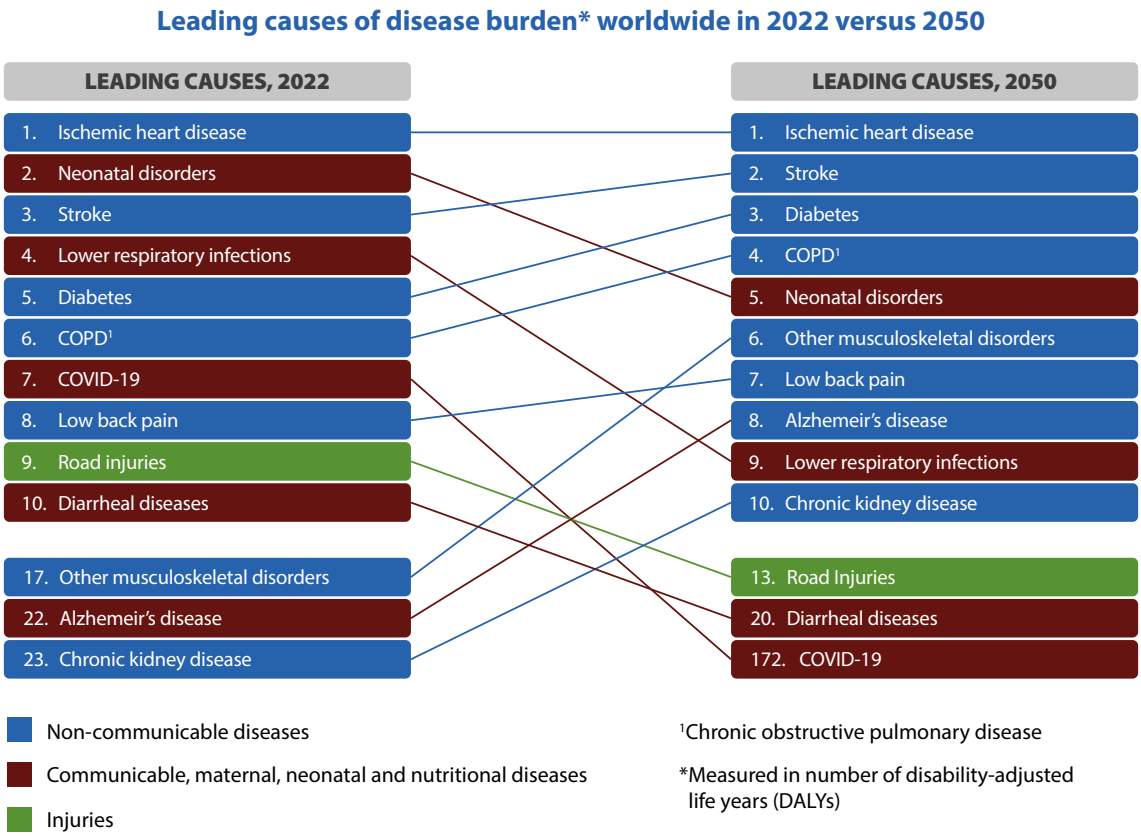
NCDs are also the leading cause of disability and responsible for more than three quarters of years lived with disability.[11] The largest disease burden recorded is from CVD related diseases. Other conditions with notable disease burdens include cancers, musculoskeletal disorders and diabetes and kidney diseases.[12] The estimated cost of NCDs is expected to reach US$47 trillion worldwide by 2030.[13]

Figure 3: Disease burden from NCDs, World, 1990 to 2019[14]



Looking ahead to 2050, NCDs are set to be eight of the top ten conditions for the disease burden globally. Ischaemic heart disease is set to stay as the leading cause, followed by stroke, diabetes and COPD. Other NCDs in the top ten include low back pain, other musculoskeletal disorders, Alzheimer's disease and CKD.[15]

Figure 4: Leading causes of disease burden worldwide in 2022 versus 2050



Increasing rates and impacts of multi-morbidity

Alongside the rise of NCDs there are also an increasing number of people living with multimorbidity.[16] Multimorbidity is defined as the existence of at least two health conditions within the same person.[17]

Studies recording rates of global multi-morbidity vary, reflecting increased patient complexity and challenges with data collection. A systematic review and meta-analysis of surveys published in the Lancet in 2023 estimated that 37.2% of the global population are living with multimorbidity – rising to one in two for the over 60s.[1819]

This rise in multi-morbidity presents a challenge to the sustainability and effective operation of healthcare systems.

Healthcare costs are rising sharply across the world. The OECD predicts that country GDP spend on health and care could rise from 6% to anywhere between 9.5% and 14% by 2060 depending on how costs are contained.[20]

The five largest NCDs (CVD, chronic respiratory disease, cancer, diabetes and mental health) are estimated to create a cumulative economic output loss of US $47 trillion between 2010-2030 which is equivalent to 75% global GDP in 2010. CVD conditions alone could account for more than half of this amount.[21]

Multimorbidity itself also greatly increases total healthcare utilisation and associated costs across primary, secondary and community care.[22] Studies have found that multimorbidity is responsible for:

- 78% of all primary care consultations in high income countries (HICs)
- More frequent hospital admissions with longer lengths of hospital stay
- A practically exponential rise of healthcare utilisation related to the number of chronic conditions
- Higher treatment burden for the patient and healthcare system[23]

In one Switzerland based study, multimorbidity was found to increase healthcare costs by 5.5 times when compared to those of non-multimorbid patients. It also found that each additional chronic condition led to an increase of 3.2 consultations and increased costs by 33%.[24]

Rising numbers of people with NCDs and multimorbidity are being driven by a number of factors including:

1. An ageing population

Between 2015 and 2050 the proportion of the world's population over 60 is expected to almost double from 12% - 22%.[25] While the majority of this demographic change has historically been seen in high-income countries, it is now low and middle-income countries (LMICs) that are facing the greatest demographic shift to an older population.[26] By 2050, it is expected that two thirds of the over 60s will be living in LMICs.[27] The global population is also living longer in old age – a 60-year-old born in 2021 is now expected on average to live another 22 years.[28]

2. Modifiable lifestyle risk factors

Modifiable lifestyle risk factors are contributing to the rise of NCDs and multimorbidity across the globe. The NCD Alliance highlights that many NCDs could be prevented through preventative action taken across key areas including diet, physical activity, tobacco and alcohol use.[29] Addressing these risk factors is also critical in preventing further NCDs from developing and leading to multimorbidity in patients. Recent studies have shown that physical inactivity, chronic stress, inadequate sleep, smoking and alcohol intake in particular, contribute to increased multimorbidity risk.[3031]

3. Socioeconomic deprivation

Rates of NCDs and multimorbidity tend to be higher in those populations living in socioeconomic deprivation. Poverty can increase the likelihood of many modifiable risk factors such as a good diet and ability to limit stress.[32] NCDs and multimorbidity can also cause poverty by increasing the likelihood of unemployment and disability.[33] As a result, multimorbidity can occur as much as 10-15 years sooner for those living in deprivation.[3435]

Challenges for policymakers

For Governments, policymakers and health system leaders addressing the challenge of multimorbidity faces a number of obstacles.

The causes of NCDs and multimorbidity are multifactorial and require a systemic response – evidence shows that there are a range of social, environmental and genetic risk factors which contribute to the development of NCDs. Addressing these issues requires widespread Government action, beyond traditional health system boundaries, aligned to health in all policies approaches which can be complex to execute and co-ordinate[36]

Health systems are not set up to treat multimorbidity – the majority of health systems have evolved to deal with individual diseases both from a service delivery and financing perspective making it difficult and expensive to manage multiple conditions for one patient. Health systems are often fragmented (both between primary and secondary care; and within secondary care specialisms) which can make care co-ordination challenging[373839]

Healthcare costs related to NCDs and multimorbidity are exponentially rising – driven by the rise of those living with NCDs and multimorbidity, many Governments are struggling to meet the rising costs of care and treatment for their populations. In addition, the reconfiguration of services to effectively manage these patient populations is complex and likely to require additional upfront investment from Governments[4041]

Health systems are focused more on treatment than prevention – in order to manage patients with multiple conditions effectively over a long period of time there is a greater need to focus on more upstream and preventative interventions. However health systems continue to spend a significant majority of their resources in secondary care when compared to primary care and prevention. Evidence has shown that whilst the COVID-19 pandemic increased health service spending on prevention across European health systems, it remains a very small part of health system budgets (3-4%)[42]

Technological advancement presents opportunities for change but additional investment is needed – new technologies including artificial intelligence and big data present opportunities for re-designing health systems so they can support a more preventative and proactive approach to population health and risk management. However studies have shown that new technologies can add an extra 0.9% to annual health budgets[43]

A lack of data, research and evidence is hindering progress – there is still a knowledge gap regarding how certain groups of diseases cluster together and impact one another which limits progress in how best to prevent, manage and treat these patient populations. Much research in HICs has generally focused on the older population with data from LMICs and younger demographics being particularly limited[44]

Health inequalities can create additional barriers in accessing timely treatment and support – there are clear links between levels of deprivation and the impacts of multimorbidity and NCDs. Patients with multiple conditions also face additional barriers in accessing healthcare (for example having to often attend multiple appointments). There may also be time challenges in engaging with services and treatment due to other commitments such as employment and caring responsibilities[45]

CHAPTER 2: THE STATE OF PLAY: CURRENT POLICY ACTION TO TACKLE NCDs

In recent years, there has been a concerted effort to prioritise action to tackle the burden and impact of NCDs at a global level.

In 2011 the Moscow Declaration on NCDs and the UN Political Declaration on NCDs noted the evidence regarding the preventability of NCDs and opportunities for new global efforts to reduce them.[46]

In 2013 the World Health Organisation published the Implementation Roadmap for the Global Action Plan for the Prevention and Control of NCDs (2013–2030).[47] The Plan had six objectives:

- **Objective 1:** To raise the priority accorded to the prevention and control of noncommunicable diseases in global, regional and national agendas and internationally agreed development goals, through strengthened international cooperation and advocacy
- **Objective 2:** To strengthen national capacity, leadership, governance, multisectoral action and partnerships to accelerate country response for the prevention and control of noncommunicable diseases
- **Objective 3:** To reduce modifiable risk factors for noncommunicable diseases and underlying social determinants through creation of health-promoting environments
- **Objective 4:** To strengthen and orient health systems to address the prevention and control of noncommunicable diseases and the underlying social determinants through people-centred primary health care and universal health coverage
- **Objective 5:** To promote and support national capacity for high-quality research and development for the prevention and control of noncommunicable diseases
- **Objective 6**: To monitor the trends and determinants of noncommunicable diseases and evaluate progress in their prevention and control

The Action Plan set a voluntary global target for delivering a 25% relative reduction in the risk of premature mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases.

The Plan included eight other voluntary targets aimed mainly at preventing NCDs from developing by tackling modifiable risk factors such as diet, exercise, tobacco use and alcohol use. One of the targets was to halt the rise in diabetes and obesity.

The document recognised that there are *"synergies between major noncommunicable diseases and other conditions"* noting the importance of addressing these through integrated approaches.[48]

In recognition of the burden rising rates of NCDs are placing on countries, the United Nations introduced Sustainable Development Goal (SDG) target 3.4. which aims to:

"By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being."[49]

One of the supplementary indicators to deliver progress on the goal was SDG 3.4.1: *"Probability of dying between age 30 and exact age 70 from any of cardiovascular disease, cancer, diabetes, or chronic respiratory disease."*[50]

The SDGs were adopted by all countries in 2015.

In 2019 the objectives of the WHO Global Action Plan were aligned to SDG 3.4 and the 2030 timeline.[51] An assessment of progress on the six objectives of the WHO Action Plan in 2021 found:

- There had been notable international collaboration on NCDs at the UN and WHO. There was evidence that this had led to a rise in countries with a national NCD policy, strategy or action plan. However nearly half of countries still had no such policy, strategy or plan in place
- Over half of countries still did not have an NCD unit, branch or department within the Ministry of Health and an operational national coordination mechanism for the prevention and control of NCDs
- Good progress was noted on countries bringing forward national policies to tackle the four main risk factors for NCDs
- Countries had made little progress in introducing evidence-based national guidelines/protocols/standards for the management of major NCDs through a primary care approach
- Just one third of countries had built national capacity for high-quality research and development for the prevention and control of NCDs
- There was some improvement noted in the proportion of countries who have set time-bound targets for reducing NCDs[52]

Assessments of progress towards SDG 3.4 in 2020 and 2022 found that the rate of decline of NCDs is currently insufficient to meet the 2030 goal.[5354]

The 2020 research published by the NCD Countdown Collaborators found that: "no country could achieve the SDG target 3.4 by addressing a single disease. Pathways to SDG target 3.4 require accelerating reductions in several NCDs to the rates of decline achieved in the best performing 10% of all countries."[55]

The study set out how fast reductions in ischaemic heart disease deaths for men were necessary so that most countries could achieve SDG target 3.4.[56] Reductions in ischaemic heart disease were also noted as important along with cancer, diabetes and COPD for women to support the delivery of SDG target 3.4.[57]

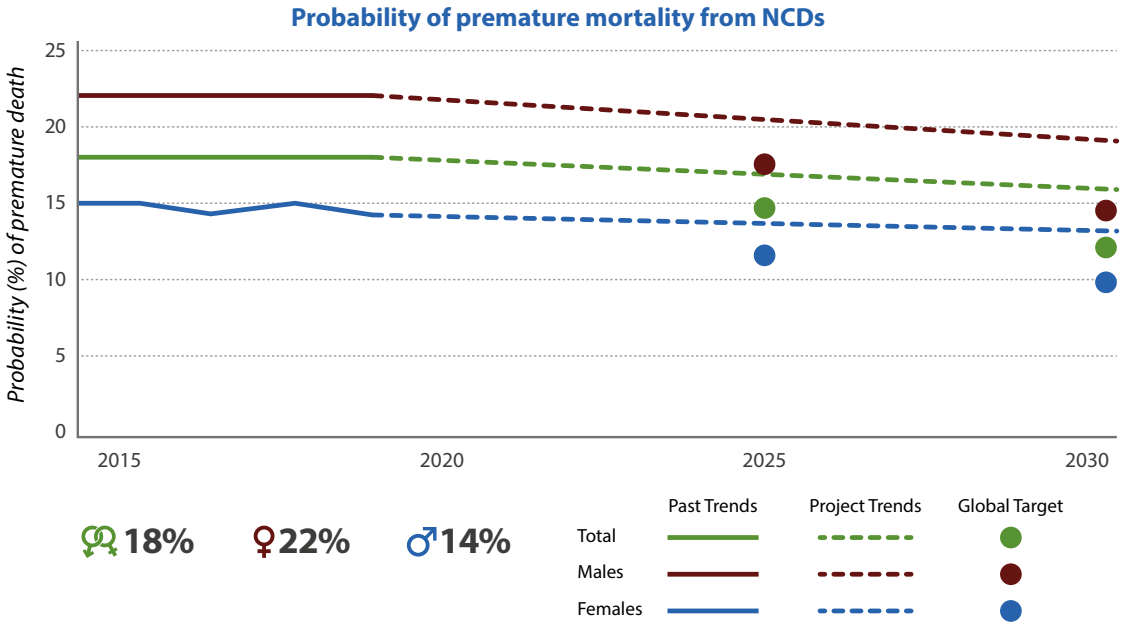
An implementation road map for the Global Action Plan from 2023-2030 set out three strategic directions for faster action to reduce the impact of NCDs:

- Accelerate national responses based on the understanding of NCD epidemiology and risk factors and the identified barriers and enablers in countries

- Prioritise and scale up the implementation of the most impactful and feasible interventions in the national context
- Ensure timely, reliable and sustained national data on NCD risk factors, diseases and mortality for data driven actions and to strengthen accountability[58]

WHO has also published an updated call to action report for member states and an online portal which tracks country-level performance data across key NCDs and key risk factors.[5960] On SDG 3.4.1 specifically progress has been behind target with a slight fall recorded in the premature mortality rate amongst women since 2015, but no recorded change for men.

Figure 5: Progress on SDG 3.4.1 in reducing rates of premature mortality[61]



In late 2024 new WHO data was released showing continuing challenges with progress against the goal. Future Health analysis finds that on current progress countries will only deliver a reduction in premature mortality from major diseases of 15.5% by 2030; this is 17.8% below the one third reduction committed to in the SDGs. Just 34 of 185 (18%) countries are on track to meet the target, with 151 set to miss the UN goal (82%).[62]

CHAPTER 3: THE OPPORTUNITY TO ACCELERATE ACTION: PRIORITISING THE CRM DISEASE CLUSTER

When assessing the rise of NCDs and multi-morbidity and the challenges and complexity this poses for healthcare systems, there is a danger that the task feels overwhelming for policymakers.

One approach to addressing this is to identify and prioritise actions on conditions with a major burden of disease and that cluster together more frequently.

According to a study by Skou et al published in 2023 the two most "consistent and replicable condition clusters across available studies include cardio-metabolic conditions and mental health conditions respectively".[63]

As set out above, CVD is the number one global cause of the burden of disease today and is set to remain at the top of the list in 2050. The importance of reducing premature mortality from CVD is noted as central to delivering the SDG 3.4 goal and where studies show further concerted action is needed.

Cardiovascular, renal and metabolic conditions (CRM) are a group of NCDs that affect the heart, kidney, and metabolic systems, which are interconnected and share many of the same risk factors.[64] There is an established body of evidence highlighting the interconnected nature of Type 2 diabetes, CVD and CKD conditions which has led to the terminology cardio-renal- metabolic (CRM) disease.[65] Affecting over one billion individuals globally[66], CRM conditions which include type 2 diabetes, CVD, and CKD are recognised as some of the most disruptive health conditions of this century[67] as well as being the leading cause of death and disability worldwide.[68]

Quality of life is often significantly impacted for those living with CRM conditions caused by the progressive nature of the diseases but also the likelihood of multimorbidity.[69] Living with the debilitating nature of these conditions alone can severely impact daily life, cause financial and mental strain, as well as put wider pressures on family and the community with regards to care.[707172]

Like other NCDs they are caused by a combination of genetic, behavioural, physiological, and environmental factors.[73] There is a strong association between obesity, diabetes, hypertension, CVD and chronic kidney disease (CKD).[7475] Cardiovascular and renal risks have also become highly prevalent in adults with metabolic dysfunction-associated steatohepatitis (MASH).[7677]

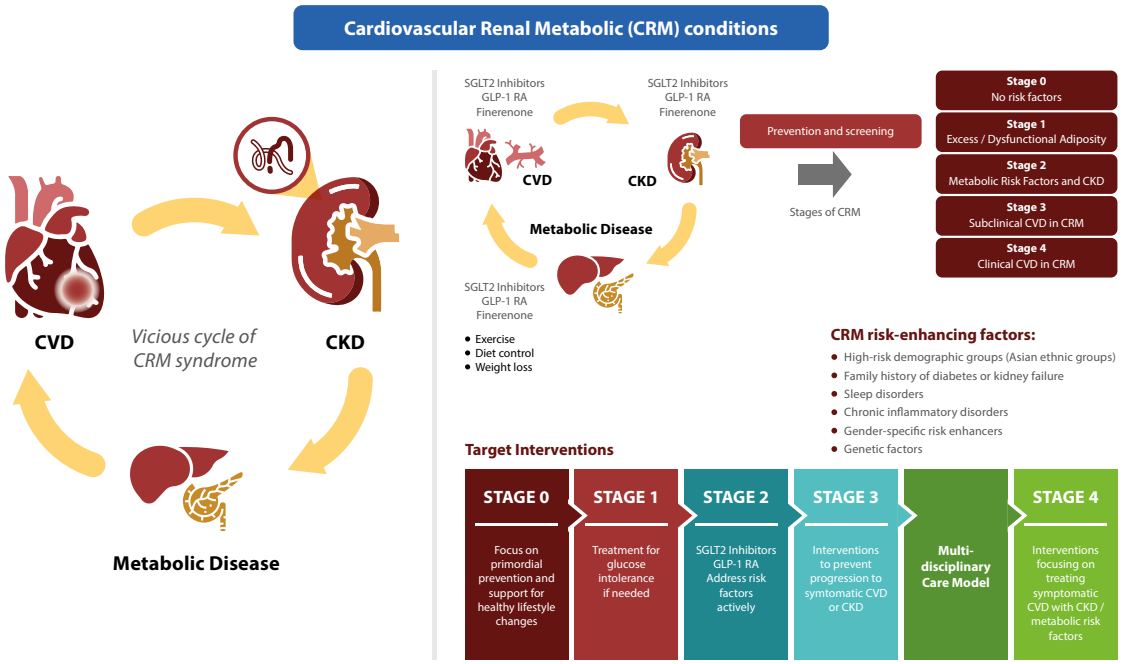
The rise of type 2 diabetes and obesity globally is particularly seen as significant in driving up rates of CRM conditions.[78]

The prevalence of interconnected CRM conditions:[7980]

- Patients with Heart Failure are four times more likely to develop Type 2 diabetes
- Those living with Type 2 diabetes have a two-to four-fold higher risk of developing CVD

- CKD prevalence in those with Type 2 Diabetes is around 40% and 50% among individuals with heart failure
- CVD is also much more likely to diagnosed among those with CKD than in the general population
- Around 23% of people living with Non-alcoholic fatty liver disease have diabetes and 51% are obese.[8182] MASLD, especially in its more severe form (MASH), is associated with higher risk of CVD given the close association with cardiometabolic risk factors, with CVD being the leading cause of death among patients with MASH[83]

Figure 6: Summary of interconnectedness of CRM conditions[84]



CVD: Cardiovascular disease, CKD: Chronic kidney disease, SGLT2 inhibitors: Sodium-glucose cotrasporter-2 inhibitors, GLP-1 RA: Glucagon-like peptide-1 receptor agonist

CRM conditions are responsible for one third of all inpatient costs and these costs increase exponentially when multimorbidity is present by up to 300%.[8586]

Global costs of CRM related conditions

Obesity: economic impact of overweight and obesity will reach $4.32 trillion annually (equivalent to 3% of global GDP) by 2035 without improvements to prevention and treatment measures[87]

Diabetes: between 2021 and 2045 diabetes treatment costs are expected to soar from $966 billion to over one trillion dollars[88]

CVD: by 2030 global CVD costs are expected to rise to $1,044 billion of which 55% are direct healthcare costs and the remainder due to indirect costs such as loss of productivity[89]

CKD: CKD costs are estimated to increase from $372.0 billion to $406.7 billion between 2022 and 2027[90]

MASH: in the US projected annual direct healthcare costs and societal costs associated with MASH are projected to reach $62.34 billion and $251.98 billion respectively between 2021 to 2040[91]

CHAPTER 4: WHAT OPPORTUNITIES ARE THERE FOR POLICYMAKERS TO DEVELOP INTERCONNECTED APPROACHES TO ADDRESS THE IMPACT OF CRM CONDITIONS?

As part of the research Future Health sought to understand how policymakers across different geographies are looking to address the challenge of CRM conditions through the adoption of more interconnected approaches.

The aim of the exercise was not to actively compare or seek to rank different geographical approaches, but rather to gather knowledge and insight on emerging policy practice and to identify opportunities for sharing relevant learnings and examples and support future policy development.

High level insights were gathered through a literature review and series of expert interviews across sixteen geographies. The geographies selected were:

Australia	Mexico
Brazil	South Korea
Canada	Spain
China	Taiwan
France	Turkey
Germany	UAE
Italy	UK (England)
Japan	US

The geographical insights are captured as a series of snapshots in the appendix of this report.

The snapshots highlight a set of opportunities for policymakers as they look to develop more interconnected responses to tackling NCDs and CRM conditions specifically. These opportunities are:

- How to build more interconnected approaches to improving health outcomes as part of overall national health plans
- How to develop more interconnected approaches as part of efforts to shift health systems to more preventative approaches to tackling major NCDs such as CVD
- How to evolve clinical guidelines and care models to be more interconnected around the needs of patients with CRM conditions

Interconnecting approaches to tackling CRM as part of national health plans

Many of the countries analysed have published overarching national health plans with ambitions for improving population health outcomes and reductions in the impact of NCDs.

Whilst many of these plans prioritise action on CVD, commitments to tackle CRM through more interconnected approaches are more limited or in some cases yet to be included. Where such commitments do exist, there is often a focus on the link between two conditions (e.g. CVD and diabetes) but not a more fully interconnected approach across CRM. Examples of approaches identified are set out below.

Australia

Australia published a National Strategic Framework for Chronic Conditions in 2019 which notes CVD as one of five top disease groups.[92] The strategy details a list of indicators in which CVD and diabetes feature, though there is no mention of liver health. While the Framework is broad, disease-specific action plans exist for diabetes, kidney disease, and CVD. Kidney health is addressed in the 2020 National Strategic Action Plan for Kidney Disease, which does reference interconnectedness with CVD and diabetes. The Framework was reviewed independently in 2023 which noted that despite ambitions to integrate care, disease-specific action plans and funding had reinforced siloed approaches to disease specific care pathways.[93] However, national strategic action plans and strategies for diabetes (2021)[94], kidney disease (2019)[95], and heart disease (2020)[96] each recognise the interconnectedness of CRM conditions and recommend the funding of an integrated health assessment or check to support early detection in primary care.

China

The overarching framework guiding health policy in China is Healthy China 2030 which was launched in 2016.[97] The strategy focuses on disease prevention and the promotion of healthy lifestyles. It includes sections on major NCDs including CVD, obesity, and diabetes, although diseases are largely addressed separately, and there is no reference to the interconnectedness of CRM conditions.

Canada

The national Government has published an array of strategy and partnership documents aimed at improving the prevention and management of chronic diseases.[9899100] These have all now lapsed with the most recent plan – Improving Health Outcomes – A Paradigm Shift: Centre for Chronic Disease Prevention Strategic Plan – running until 2019.[101] This plan recognised the burden of rising rates of NCDs and multimorbidity – however it did not detail specific disease approaches. Instead it focused on the need for improved research and innovation to tackle the rise of NCDs, as well as more innovative approaches to payment models to improve outcomes.

England

In 2023 the Government published a Major Conditions Strategy framework which focuses on the management of six major disease groups including cardiovascular diseases with a particular focus on stroke and diabetes.[102] The framework does reference kidney disease as a risk factor for CVD but there is no mention of liver disease. The plan notes the importance of integrating care for those with multiple conditions however disease approaches are still presented in silos. The plan was not implemented – with the work instead being folded into the new Labour Government's ten year health plan which is expected to be published in June 2025.[103]

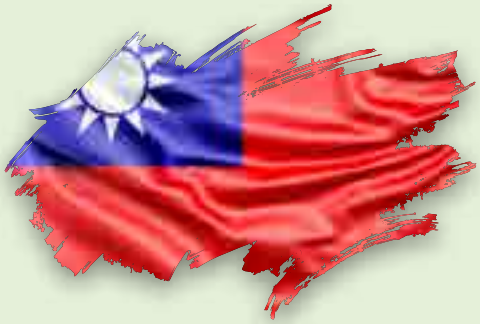
USA

Healthy People 2030 published by the Office of Disease Prevention and Health Promotion under the first Trump administration sets data-driven national objectives to improve health and well-being over the next decade. It includes specific, measurable objectives around CKD, cardiovascular disease, diabetes and obesity.[104] The future direction of the initiative is unclear following the change of administration.

Preventing CVD through more interconnected CRM policy approaches

Given the significant patient, health system and economic impacts of CVD, a number of the countries analysed have developed policies with a focus on CVD prevention specifically. The focus on the prevention of CVD does see policymakers make a case for a broader and more interconnected approach to tackling CVD often across the wider range of CRM conditions, though this is not by no means universal and some conditions are not included. Examples of the different types of approaches identified are set out below.

Taiwan



The Healthy Taiwan Promotion Committee was established by the Presidential Office in June 2024 to tackle the challenges of an ageing population and the increasing burden of non-communicable diseases. The committee comprises people from government, medical, and private sectors and focus on preventive healthcare, digital health technologies, and cross-departmental collaboration.[105]

The initiative has set targets that by 2028, 80% of patients with hypertension, diabetes, and hyperlipidemia will be part of the "Collaborative Care Program" driven by the "Everyone's Health Plan" for holistic management and tailored care based on risk levels. By 2030 the aim is for 80% of patients in the Collaborative Care Program to control their blood pressure, blood sugar, and blood lipids. Digital technologies and AI will be used to under risk assessments and enhance care quality and improve health outcomes.

USA

The Million Hearts[106] is a national initiative co-led by the CDC and the Centers for Medicare & Medicaid Services (CMS) with the aim of preventing one million heart attacks and strokes by 2027. It focuses on implementing a small set of evidence-based priorities and targets that can improve cardiovascular health for all. These include:

- Tackling public health through decreasing tobacco use, physical inactivity, and particle pollution exposure
- Optimising care for example through blood pressure checks, cholesterol management and smoking cessation
- Tackling health inequalities

In its first five year cycle the initiative prevented an estimated 135,000 heart attacks, strokes, and related acute cardiovascular events.[107] There are calls to expand the

check factors to a wider set of more inter-connected conditions, such as CKD.

Published under the previous Trump administration, Advancing American Kidney Health did set out a vision for the diagnosis and treatment of kidney disease in the US. The plan recognised the need to address upstream risk factors like diabetes and hypertension.[108]

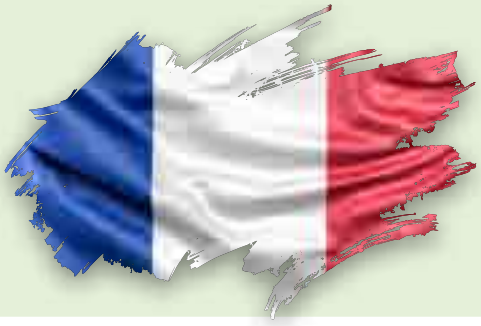
Brazil

The Strategic Action Plan to Tackle Noncommunicable Diseases in Brazil 2011-2022 had a particular focus on tackling obesity, modifiable risk factors for chronic diseases (diet, alcohol, smoking, physical activity), as well as screening for breast and cervical cancers and the availability of diabetes and high blood pressure treatments.

The document recognised CVD as the major cause of morbidity and mortality in Brazil. It also notes hypertension as a risk factor for CVD, renal disease and diabetes.[109]

France

France's National Health Strategy 2018 – 2022 included a focus on prevention and the early detection of chronic diseases.[110] More recently, the Government have been consulting on an updated strategy which includes commitments to tackle cardiovascular disease, obesity and diabetes. It also has a focus on integrating care for patients supported by specialist nurses.[111]



China

Under the Healthy China 2030 initiative, there are several policies and guidelines aimed at tackling CRM conditions. The Medium-to-Long Term Plan of China for the Prevention and Treatment of Chronic Diseases (2017–2025)[112] proposes eight strategic measures to improve the prevention and treatment of chronic diseases. The Implementation Plan for the Prevention and Control of Cardiovascular and Cerebrovascular Diseases (2023-2030)[113] references CVD and diabetes but not liver or kidney disease. There is also a specific Implementation Plan for Diabetes Prevention and Control (2024-2030)[114] and a range of policies and guidelines aimed at tackling obesity.[115]

Japan

Japan's National Health Promotion Movement (Health Japan 21) first launched in 2001 as a 13-year national health promotion policy aimed at preventing and controlling NCDs and their underlying risk factors.[116] The plan was revised for a further 10-years in 2012, and then again in 2023.

The Japanese National Plan for Promotion of Measures against Cerebrovascular and Cardiovascular Disease aims to extend healthy life expectancy by 3 years by 2040, compared with 2016 and to decrease age adjusted mortality of cerebrovascular and cardiovascular disease. There is a clear focus in the plan on prevention across primary, secondary and tertiary measures, the main thrust of the plan is in reducing the direct impacts of CVD on life expectancy with less immediate focus on the role of interconnected conditions.[117]

CKD is included in the Japanese Ministry of Health, Labor and Welfare's (MHLW) 8th Medical Care Plans. The basic policy of MHLW for the Eighth Medical Plan stated in 2023 that CKD is a policy problem that should be addressed, and CKD was included in the regional medical plans for 36 prefectures in April 2024.

South Korea

South Korea have published an Act on the Prevention and Management of cardio-cerebrovascular diseases although it makes no mention of interconnectedness with CRM conditions such as liver and kidney disease.

There are no official national liver or kidney disease plans, though there is a National Strategic Plan for Viral Hepatitis Control.[118]

The Korean Society of Nephrology (KSN) has published their Kidney Health Plan 2033, this would serve as a milestone to bridge current issues with CKD and address the prevention and progression of CKD and end-stage kidney disease (ESKD) – particularly diabetic kidney disease(target is to reduce 10% Diabetes kidney disease). This plan is initiated by the Korean Society of Nephrology, not a government entity.[119]

Mexico

The Specific Action Programme for Cardiometabolic Diseases 2020-2024[120] has been published by the Secretaria de Salud which focuses on the prevention, detection, diagnosis, treatment and control actions for the most prevalent cardiometabolic diseases in the Mexican population (obesity, Type 2 Diabetes, hypertension and dyslipidaemias), in order to help reduce morbidity, complications and mortality. The document also signals an ambition to integrate care for patients with multiple chronic conditions. Mexico has also implemented the HEARTS initiative, in collaboration with the Pan American Health Organization (PAHO), which seeks to improve the prevention, detection, diagnosis, treatment and control of high blood pressure and diabetes.[121]

Spain

Spain published its Cardiovascular Health Strategy of the National Health System (ESCAV) in 2022 which is focused on reducing the prevalence of cardiovascular diseases, as well as their risk factors. The strategy focuses on:

- A broad and integrative view of cardiovascular health
- CVD health promotion and prevention
- A pathway based approach from early detection to rehabilitation
- Comprehensive, multidisciplinary, coordinated and person centred care
- Delivering greater equality of outcomes by gender

Whilst the strategy focuses on some of the main public health risk factors for CVD, including obesity and smoking it does not include a focus on interconnected conditions such as liver or kidney disease.[122]

Turkey

According to Tokgozoglu et al Turkey was one of the first countries in Europe to establish a 'National Heart Health Policy' aiming to decrease the burden of CVD and its risk factors. A Multisectoral Action-Plan was launched, and its 4 strategic pillars were:

- Strengthening national capacities, leadership, governance and partnerships
- Reducing modifiable and preventable risk factors

- Strengthening the response of the health system
- Monitoring trends and determinants of non-communicable diseases and evaluating progress in their prevention and control[123]

A national cardiovascular plan was published in 2021, with separate plans also published to tackle obesity, diabetes and chronic kidney disease.[124][125][126][127] There is a strong focus in Turkey's health plans on primary prevention and reducing CVD risk factors.

Evolving clinical guidelines and care models to support a more interconnected approach to CRM

Although the interconnected nature of CRM conditions is well documented in research, healthcare guidelines and care models tend to be designed in silos focusing primarily on one disease area.[128][129] This often hinders the integration of care provided to multimorbid CRM patients who require an array of healthcare specialists such as nephrologists, cardiologists, endocrinologists, hepatologists, and primary care physicians. A lack of interconnectedness in the management of CRM conditions – particularly in the early stages where conditions can be asymptomatic – can result in suboptimal care causing diagnostic delays, misdiagnosis and delays in accessing care and treatment, impacting patient outcomes.[130][131]

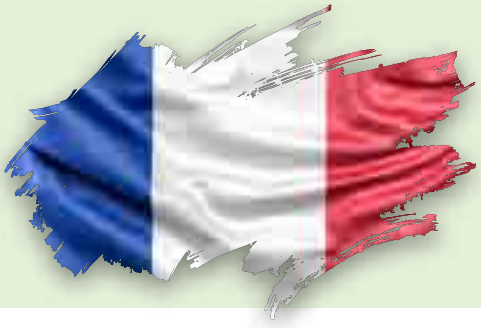
Examples of the different types of approaches to changing clinical guidelines and care models identified are set out below.

Brazil

The Brazilian Association for the Study of Obesity and Metabolic Syndrome published guidelines for the management of obesity in 2016[132] which clearly linked obesity with the risk of developing type 2 diabetes, CVD and MASLD, however it does not mention kidney disease. The Brazilian Society of Hepatology published a consensus statement on the management of MAFLD in the same year[133] which details its close relationship to type 2 diabetes and CVD, however it does not mention kidney disease.

France

HAS, the French HTA body, has updated in 2024 its guidelines for treating Type 2 Diabetes[134] which includes a focus on prevention, screening and treatment of cardiovascular and renal complications. There are separate guidelines for the treatment of obesity[135], CKD[136] and liver disease.[137]



Germany

Disease Management Programmes is the principal policy framework for chronic disease management in Germany and was introduced in 2002.[138] The focus is improving quality of care and includes programmes for diabetes, coronary heart disease, chronic heart failure and obesity. There is no specific programme for kidney disease but it is listed as a co-morbidity of other conditions.[139]

China

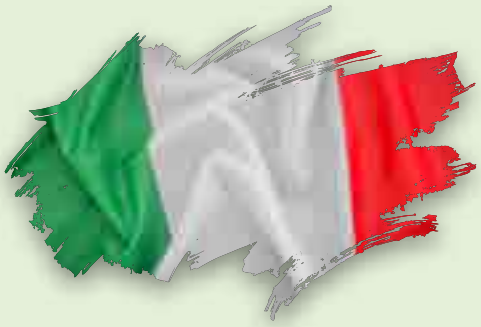
The Cardiometabolic Outpatient Department of Peking University Third Hospital provides individualised and comprehensive management of risk factors such as blood pressure, blood lipids, blood glucose, uric acid, obesity, hypothyroidism, and MASH for patients with multiple metabolic cardiovascular risk factors.[140]

England

There are emerging medical models which are being trialed and evaluated within the health system to better join-up care for patients with CRM conditions including a cardio-metabolic clinic at St George's Hospital, London[141] and a Cardio-nephrology multi-disciplinary model approach at Aintree University Hospital, Liverpool.[142]

Italy

While there is no national interconnected policy for CRM, there are regional examples of good practice. The Lombardy region has introduced a health programme in 2025 which focuses on delivering strategic advancements in cardiovascular care with a particular focus on telemedicine, networked hospital models and community-based healthcare.[143] There is a particular focus on the management of patients with cardiovascular and diabetic conditions.



Spain

The Institute for Global Health in Barcelona and Hospital Universitario Virgen del Rocío in Seville are spearheading the Clinical Care Pathway Assessment Project (CARPA). This three-year project aims to determine the optimal referral pathway for patients living with MASLD and MASH, from primary care to liver specialists. About 7,000 patients at risk of MASLD-related fibrosis will be recruited, and two diagnostic pathways will be assessed across 11 primary care and other non-hepatology specialist settings (e.g. endocrinologists, diabetologists).[144]

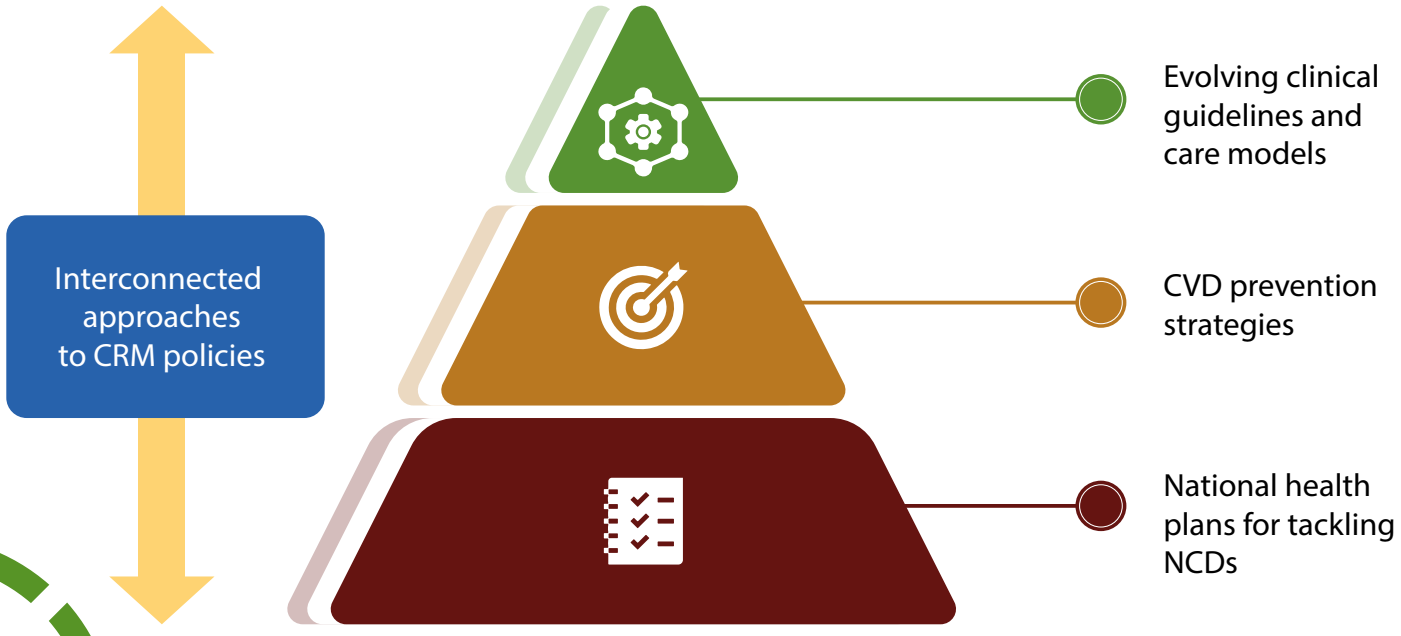
Summary

The geographic snapshot analysis highlights a set of opportunities for policymakers in building more interconnected policies for CRM conditions. In a number of cases policymakers have started to explore how to build such approaches into their efforts to improve population health, prevent CVD and evolve guidelines, pathways and models of care.

However whilst there are examples of specific initiatives, models and approaches that are delivering more interconnected CRM policies, the approaches adopted are still often not one of full interconnectedness based on a clustering approach, but rather one of association or relationship between individual conditions (e.g. diabetes and CVD) or related risk factors between conditions (e.g. obesity and CVD). Some conditions such as CKD are more absent in the approaches taken.

In the next section the enablers for change to address this and build more interconnected CRM policies will be explored in more detail.

Figure 7: Opportunities for policymakers to adopt more interconnected approaches to CRM conditions



CHAPTER 5: UNLOCKING THE ENABLERS FOR POLICY CHANGE THAT CAN SUPPORT GREATER INTERCONNECTEDNESS

The country level snapshot analysis highlight some of the main opportunities policymakers have to build more interconnected policies to address CRM conditions.

However – and as set out earlier in Chapter 1 – the move to more interconnected policy approaches is complex and faces several challenges to being implemented successfully.

To overcome these challenges, a set of enablers for change will need to be unlocked by policymakers.

Utilising data, new technology and the opportunity of disease clusters to deliver more interconnected health policies

There are new opportunities to use data and evidence on the way diseases tend to cluster to inform healthcare policy and the design of healthcare services. This can improve the prevention, management and treatment of NCDs and in particular support the development of policies to tackle multi-morbidity. Advances in data analytics, electronic patient records, artificial intelligence and machine learning can all help power this change.[145146]

As set out in in figures 8 and 9 below this can help evolve the policy model from one where specific conditions are prioritised to one where important disease clusters are used to inform national health plans, action in tackling major conditions such as CVD and are reflected in more interconnected clinical guidelines and service models.

Figure 8: Traditional health policy model focused on improving outcomes in specific conditions

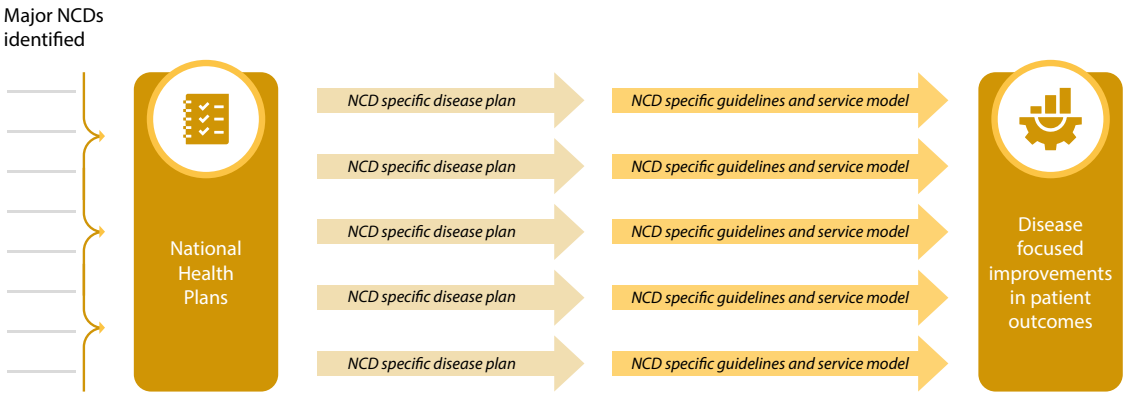
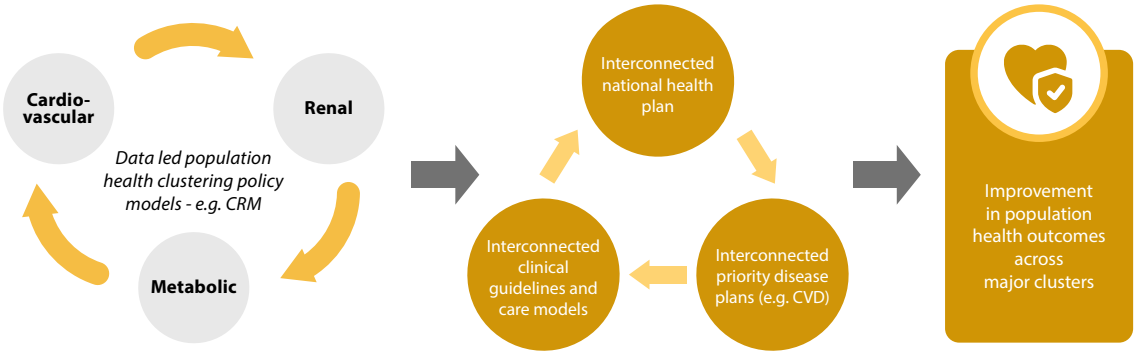


Figure 9: More interconnected health policy model using clustering to inform policy design and improve patient outcomes



In developing policies through this data led approach, countries will be able to identify priority disease clusters affecting their populations and then build more interconnected policies to tackle them. As one of the two most common clusters, CRM presents a cluster for policymakers to prioritise.[147]

As an example in 2024 the Dubai Health Authority published a plan to tackle cardiometabolic syndrome based on exceedingly high incidence of cardiometabolic diseases, particularly impacting young patients and leading to a high burden of premature CVD events. The plan includes a focus on screening and earlier diagnosis of patients and an extensive list of related conditions and associated risk factors – including obesity, diabetes, CKD and chronic liver disease.[148]

Prioritise the funding for interoperable data systems, AI tools and new diagnostics to support population health and the screening and earlier diagnosis of patients with CRM conditions

Delivering on this interconnected policy model requires access to high quality data and new technologies that can support more proactive approaches to:

- Identifying important disease clusters affecting population health
- Risk stratifying patients within these clusters
- Intervening and diagnosing patients earlier
- Supporting the greater integration of health services around patients, through for example electronic medical records helping data flow between healthcare settings
- Enabling the more effective triage of patients so patients receive the right care at the right time
- Helping patient self-management of their condition
- Recording health outcomes and helping to evolve financial payment models

For CRM, risk stratification can help diagnose conditions early (which can often be asymptomatic) as well as reduce the number of additional conditions developing or worsening. One example is CKD which is a growing international healthcare challenge, closely linked with CVD.[149] Patients with CKD experience a loss of 25 years of life at advanced stages compared with individuals with normal kidney function.[150] As noted by Saeed et al 'individuals with CKD face a high risk of cardiovascular events, making cardiovascular-associated mortality a significant concern in advanced CKD stages.'[151]

There are challenges with the awareness and recognition of CKD and its lack of interconnection with other related conditions such as CVD.[152] Kotwal and Perkovic note that by 'highlighting the importance of CKD throughout a clinician's journey, incorporating CKD into current cardiovascular guidelines, and integrating traditional and novel therapies into existing cardiovascular prevention programs will lead to increased recognition and improved management of people with CKD. Prioritising CKD management from prevention to intervention will significantly reduce the global CVD burden.'[153]

Targeting particular at risk populations can be particularly helpful in screening for CRM conditions.[154][155][156] For example the Indian Health Service, the Federal Health Program for American Indians and Alaska Natives in the United States has put in place a best practice programme for screening people with diabetes for CKD. The screening is done by a urine albumin-to-creatinine ratio (uACR) test. Regular screening and monitoring allow for intervention which may help slow CKD progression.[157]

Clinical guidelines are also starting to be revised to take a more interconnected approach. For example in France in 2024, the French HTA body, updated its guidelines for treating Type 2 Diabetes which includes a focus on prevention, screening and treatment of cardiovascular and renal complications.[158]

There are also opportunities here to utilise new technologies such as clinical decision support systems (CDSSs), which can help prompt clinicians to undertake diagnostic tests or further enquiries based on patient test results and risk factors.[159]

CDSSs aimed at preventing CVD include one or more of the following:

- Tailored reminders to screen for CVD risk factors and CVD-related preventive care, clinical tests, and treatments
- Assessments of patients' risk for developing CVD based on their history, risk factors, and clinical test results
- Recommendations for evidence-based treatments to prevent CVD, including intensification of existing treatment regimens
- Recommendations for health behavior changes to discuss with patients, such as quitting smoking, increasing physical activity, and reducing excessive salt intake
- Alerts when indicators for CVD risk factors are a concern

Shifting incentives and payment models to move away from silos and to support interconnectedness

In moving towards a disease clustering approach to health policy design, health system financing models and incentives will also need to evolve.

The most common approach to financing healthcare systems focuses on a throughput model whereby providers are paid per interaction with a patient. This often drives increased healthcare activity and costs particularly in secondary care settings. In addition many healthcare systems operate mixed funding models across public, private and voluntary organisations which can result in funding for care being siloed. This can also lead to – as set out by Peiris et al – 'one sector offloading care and costs to another, rather than collaborating to improve efficiency and outcomes across the continuum of care.' There is also the challenge of realising returns on investment across care pathways as 'even if investments in one silo (such as the primary health care sector) lead to better coordination and reduced utilisation in another silo (the hospital system), the costs of implementation may not be supported if hospitals cannot directly receive the financial benefits from reduced acute care utilisation.'[160]

If health systems are to become more interconnected and built around the needs of patients this will need to see a shift in resources 'upstream' particularly into primary care. For Professor Chris Ham it is critical to accept the trade-offs here with the changes 'ensuring that the flow of resources supports the development of primary health care and discourages the further expansion of inappropriate specialist care.'[161] As part of this change, policymakers should consider payment models that are focused on achieving agreed outcome targets. This should include health outcomes, reductions in the impact of health conditions on health system pressures and patient-led priority metrics such as reducing people's treatment burden and improving patient experience of care. In developing outcome metrics policymakers will need to use approaches that focus on the multi-factorial and interconnected nature of disease clusters, moving away from the single condition and narrow outcome measures that have been traditionally used.

As an example, in 2015, the Australian Government established the Medicare Benefits Schedule (MBS) Review Taskforce to consider how the thousands of items delivered through the MBS could be 'better aligned with contemporary clinical evidence and practice and improve health outcomes for patients.'[162] The Taskforce final report in 2020 recommended: 'rebalancing healthcare financing from near exclusive reliance on 'fee-for-service' to complementing with 'block' and 'blended' payments in order to support more clinically appropriate modes of patient care.'[163] In the 2023-24 Budget the Government committed to rolling out reforms to the funding of chronic disease management in primary care from July 2025.[164]

Finally and in order to realise the benefit of an interconnected health system approach to managing multimorbidity, policymakers will also need to shift to measure outcomes over longer periods of time and look to underpin this with more multi-year budgeting cycles.

Working with clinical leaders to develop multimorbidity care models with a greater focus on primary care

In order to support new models of care designed around disease clusters like CRM there will need to be a shift away from specialist and more siloed working into a more network and team based model of care, with a stronger role for primary and community care practitioners. Engaging with clinical leaders in shaping this will be vital. The importance of physician leadership in service change is highlighted by Ham as at the core of the success of Kaiser Permanente's integrated delivery model in the USA.[165]

In Alberta Canada, an expert panel of over 40 individuals from across primary health care, patients and citizens, Colleges, Associations and professions (medical doctors, nurse practitioners, registered nurses, pharmacists and a range of allied healthcare providers) helped support the development of a new action plan for improving Alberta's primary healthcare system. The plan has three main aims:

- Purposefully organise Alberta's health system around, and prioritise investments in, primary health care
- Improve integration between primary care, other parts of the health system and community-based social services
- Create an environment that supports, values and enables primary care providers in doing what they do best – providing quality primary care to the people of Alberta[166]

The plan included eleven recommendations including the importance of investing in the primary care workforce and new team based care models noting: 'team-based care has also been shown to positively impact broader downstream system level outcomes including rates of hospitalization, visiting the emergency department or being referred to a specialist.'[167]

The advent of multidisciplinary team working and care coordination should be a central component of new care models for disease clusters like CRM. Innovative care models built around CRM have shown to improve health outcomes, reduce healthcare utilisation and improve patient experience of care.[168169170]

The Pilot Cardiometabolic Clinic Initiative (UNITE) is a global initiative aimed at improving outcomes of CVD risk in patients with type 2 diabetes. The UNITE model is seeking to develop and implement workflows and care delivery processes adapted to different health care systems and resource constraints.

The care model uses multidisciplinary teams, including primary care, cardiology, endocrinology, as well as administrative staff, to coordinate care to address risk reduction and disease management. Key performance metrics include specific patient outcome measurements (i.e. blood sugar, cholesterol, blood pressure), pharmacological interventions initiated, clinic processes, and programme performance measurement.

Key methods used within the model to deliver on its goals include the following:

- Shifting the focus from glycemic control to comprehensive management of cardiovascular risk through consistent and proportionate use of guideline-directed medical therapy
- Using strategies for integrated, effective care across specialties that include early detection and intervention and lifestyle management
- Providing clinical and operational guidance for efficient functioning of a cardiometabolic clinic[171]

Italy's National Chronic Disease Plan first published in 2016 and updated in 2024 focuses on the prevention, care and treatment of chronic diseases. The latest Plan notes the importance of transitioning to a network model which values both specialist and primary care healthcare professionals.[172]

New training and knowledge dissemination will also be needed to support the management and treatment of multimorbid patients within specific disease clusters.[173][174]

The International Cardiometabolic Working Group have noted that 'postgraduate training and narrowly focused clinical specialisations reflect the traditional siloed approach to managing cardiovascular-metabolic disease that appears increasingly outmoded in the 21st century.'[175] One example of a postgraduate course to address this is the postgraduate cardiometabolic health course conceived by Zurich Heart House – London Heart House, King's College, and Royal Brompton & Harefield Hospitals. Over four days the course includes sessions on an extensive range of inter-connected clinical areas including obesity, diabetes, chronic kidney disease, liver disease and heart failure.[176]

Empower patients to improve self-management and break down barriers to care

Given the increased treatment and management burden patients with multimorbidity face, actions will need to be taken where possible to support improved patient self-management. Effective self-management not only improves health outcomes for patients but reduces the burden on healthcare systems by decreasing healthcare utilisation.[177]

Effective self-management requires good patient education and information to improve patient awareness of their condition and risk factors. The WHO has produced a guide for policymakers and health professionals to support self-management of chronic conditions through improved therapeutic patient education.

Dr Jill Farrington, WHO/Europe's Regional Medical Officer for Cardiovascular Diseases and Diabetes notes that: "many patients may be just given a leaflet and sent home. They can end up relying on informal online chatrooms as their only support. Therapeutic Patient Education (TPE) is an evidence-based, structured learning process where a trained health professional supports the patient to gain competencies for their condition through a person-centred approach and

techniques such as skills training and self-monitoring. With the support of carers and families, this approach can help people to manage their chronic conditions throughout their lives, adapting to changes in their circumstances and in their conditions."[178]

Supporting self-management strategies focus on modifiable risk factors for the development of NCDs such as diet, exercise, smoking, alcohol consumption and pollution. This is particularly relevant for CRM conditions which are linked to the rise of obesity and diabetes globally.

It should also include the use of proven pharmacological interventions which can help slow down disease progression and/or prevent secondary conditions from developing.

Patients should also be supported to overcome common barriers to care such as financial, accessibility and care / employment commitments. These barriers are most acute amongst those from more deprived communities in HICs and populations in LMICs who also tend to experience multimorbidity and CRM conditions at a younger age.[179][180]

Alberta's primary healthcare plan sees citizens as partners across all levels of the service:

- **At the clinic level:** Patients should be partners in their health care journey with their primary health care teams in the patient's medical home. Patients should be empowered and enabled to self-manage, understand their condition and treatment options, and be actively involved in the development and evaluation of their care plan
- **At the Integrated Health Neighbourhood (IHN) level:** Primary care must effectively integrate care providers and communities within a patient's medical home and IHN, and build partnerships between them. Creating incentives, expectations and opportunities for integration of the patient's medical home and IHN. This should include a robust feedback mechanism that enables input from all people in the community to ensure that services are culturally appropriate and reflect the unique health and social needs of that community
- **At the system and policy level:** There are significant challenges facing the province's broader system, including the health literacy of the population and the public's ability to navigate the health system. Having access to information, being able to use it as a tool and knowing how to navigate the province's health care system — independently and/or with support — is critical to accessing quality care in a timely manner[181]

In Spain, the Andalusian Health Service has implemented a proactive remote monitoring platform used by over 3,000 professionals, enabling patients to measure vital signs from home. This allows for the early detection of issues in complex chronic patients, including those with heart and lung diseases. The Community of Madrid supports mutual aid and self-care programs for chronic patients through grants to patient organisations, helping them better manage their conditions and navigate the healthcare system.[182183]

Upscale research into multimorbidity and into better understanding how disease clusters like CRM are interconnected

There is not enough available research and evidence into the burden, determinants, prevention and treatment of patients with multimorbidity – particularly given the scale of the problem faced by health systems across the world. This is particularly acute in LMICs and amongst younger populations globally. There is also a need for greater investment in research and evidence to support better understanding of how exactly disease clusters like CRM are interconnected and how this is best translated into new care models and treatment approaches for patients. One such approach is to share learnings and evidence between countries and health systems as new strategies are deployed, particularly in CRM.[184185]

In the UK the National Institute for Health Research (NIHR) has published a Strategic Framework for Multiple Long-Term Conditions (MLTC) Research. It aims to improve the lives of people with MLTC and their carers, and provide the evidence needed to address challenges in managing MLTC within health and social care services.

1. Identifies and maps common clusters of disease and their trajectories among the population
2. Identifies the problems and outcomes that matter most to patients and carers and how they would like to see services configured to meet their needs
3. Delivers research into models of care that enable the health and social care system to take a person-centred approach to the treatment and care for people with MLTC, including quality of life and well-being
4. Supports design and delivery of interventions to prevent patients progressing from one long-term condition to MLTC
5. Addresses the inequalities that drive and exacerbate MLTCs, in particular amongst disadvantaged communities and regions which have historically been under-served by health and social care research
6. Develops methodologies suitable to MTLC research. This includes developing definitions that can be used across studies, developing appropriate outcome measures that capture outcomes that matter to people with MTLC and developing robust methodologies to address the complexity of MLTC[186]

The NIHR has already invested research into exploring how to provide more holistic support for patients with CRM conditions.[187]

Working on an aligned cross government approach to improving health outcomes

Research has shown that only 20% of health outcomes come from medical care, with 80% stemming from socioeconomic, environmental and behaviour factors.[188]

For Governments in developing national health plans to tackle NCDs there is a need to ensure that aims in improving health adopt a 'one health' approach which goes beyond the health system and is multisectoral and collaborative.[189] Aligning the aims of the finance and health ministries will be particularly important when considering moves to delivering more preventative and proactive care. To deliver this will require funding models and commitments that reward and capture the wider socio-economic benefits of health interventions, for example supporting people in returning to work more quickly or requiring less formal or informal social care.[190][191][192]

The Institute for Public Policy Research in the UK has set out a framework for how Governments could approach this challenge:

- Legislate an aspirational mission: Government should legislate a 30-year goal of adding ten years to healthy life expectancy
- Build delivery infrastructure: Alongside a health mission board with broad membership – from major employers, government departments beyond health, local government and innovators – we suggest a new body modelled on the UK Climate Change Committee to drive accountability, coordinate delivery (including across but also beyond government) and break down the mission into five-year plans
- Test investment on health: Much like the UK's Office for Budget Responsibility helps model the impact of fiscal events, we suggest government publishes assessments of how fiscal events will impact progress towards a health mission. They should use (an expanded) health index – a 'GDP for health' – to make these assessments[193]

Previous research from Future Health has also explored how health and economic policies can be more closely aligned, within the UK context.[194]

Summary

This chapter explores the enablers for policymakers to adopt in order to deliver more interconnected approaches to tackling conditions such as CRM. Without these enablers in place progress on developing interconnected approaches is likely to be restricted.

Figure 10: Enablers for policymakers to adopt to build more interconnected approaches to tackling disease clusters and rising multi-morbidity

CONCLUSION

Health needs around the world are changing. Older populations, with rising rates of chronic disease and multi-morbidity are affecting people's quality of life, increasing pressures on health systems and economic costs.

Whilst policymakers have taken action at both global and national level to seek to reduce the impact of NCDs, existing plans are struggling to meet the scale of the challenge.

This paper proposes an approach to tackling NCDs that focuses on building more interconnected health policies that prioritise particular disease clusters such as CRM; with an aim of making more rapid progress in improving health outcomes.

To deliver policymakers can update and revise national health plans, NCD plans aiming to prevent CVD and clinical guidelines and care models to make them more interconnected. But in order to do so effectively policymakers will need to address the seven enablers for change.

Change in healthcare systems is challenging but new data, technologies and diagnostics present opportunities to think, act and deliver in a more interconnected way and build a more patient centred future for all.

Geographical snapshots

The following geographical snapshots seek to provide a high-level summary of recent policymaker action in tackling the impact of NCDs and CRM conditions as well as some headline statistics on the impact of CRM conditions. It also seeks to identify examples of interconnectedness in approaches across the three opportunities identified in the research (national health plans, CVD prevention plans, guidelines and care models). The snapshots are not comprehensive but rather designed to provide insights into emerging policy practice related to efforts to address the impact of CRM through more interconnected approaches.

Australia snapshot

Australia has a universal healthcare system which provides free or subsidised access to primary and secondary care services (Medicare), as well as medicines (Pharmaceutical Benefits Scheme). Funding is provided by a mix of Government (national and state / territorial), individuals, private health insurers and non-government organisations. Around 10% of GDP is spent on healthcare; 70% of which comes from government sources.[195][196]

The 2020–25 National Health Reform Agreement (NHRA)[197] is the main strategic framework aimed at prevention and helping people manage their health – including long-term chronic conditions. The document also prioritises health literacy, a focus on outcomes based funding mechanisms, as well as the better use of data and technology to deliver services.[198]

Australia published a National Strategic Framework for Chronic Conditions in 2019 which notes CVD as one of five top disease groups.[199] The strategy details a list of indicators in which CVD and diabetes feature, though there is no mention of liver or kidney health. The Framework was reviewed independently in 2023 which noted that despite ambitions to integrate care, disease-specific action plans and funding had reinforced siloed approaches to disease specific care pathways.[200]

However, national strategic action plans and strategies for diabetes (2021)[201], kidney disease (2019)[202], and heart disease (2020)[203] each recognise the interconnectedness of CRM conditions and recommend the funding of an integrated health assessment or check to support early detection in primary care.

In 2024 the Government began consulting on options for combining health checks for chronic conditions with similar risk factors (e.g. diabetes and cardiovascular disease) into a single funded assessment.[204]

Separately, a new national funding approach to support chronic disease management was announced in 2024 and will begin in July 2025.[205] This will include a single GP Chronic Conditions Management Plan which will be regularly reviewed, as well as a more formalised referral system to allied healthcare professionals.

Australia also has a number of national programmes aimed at tackling CRM conditions including the Cardiovascular Health Mission (primarily research funding)[206] and the National Diabetes Services Scheme (programme to support patients manage their disease).[207]

Disease statistics

- 14.2% of adults had indicators of chronic kidney disease, up from 10.8% a decade earlier[208]
- Cardiovascular diseases account for 25% of all deaths[209]
- 19.8% of Australians live with obesity[210]
- One in fifteen (6.6%) adults had diabetes[211]
- First Nations Australians are three times more likely to have diabetes (17% vs 6.1%) and experience a life expectancy gap of 8–9 years[212]

Brazil snapshot

Brazil's healthcare system is called the Sistema Único de Saúde (SUS), which is free and universal. It is managed by the federal, state, and municipal governments. Introduced in 1988, SUS has improved access to healthcare and reduced health inequalities, however funding continues to be under pressure.[213]

Although the Family Health Strategy introduced in 1994 strengthened the primary care system focused on avoidable hospitalisation for chronic conditions through a preventative multidisciplinary (MDT) model and provides a good foundation for the establishment of interconnected disease policy, there is little national policy focused on disease specific management beyond primary prevention.[214]

The Strategic Action Plan to Tackle NCDs in Brazil 2011-2022 had a particular focus on tackling obesity, modifiable risk factors for chronic diseases (diet, alcohol, smoking, physical activity), as well as screening for breast and cervical cancers and the availability of diabetes and high blood pressure treatments. The document recognises CVD as the major cause of morbidity and mortality in Brazil. It also notes hypertension as a risk factor for CVD, renal disease and diabetes.[215]

More widely the Brazilian Association for the Study of Obesity and Metabolic Syndrome published guidelines for the management of obesity in 2016 which clearly links obesity with the risk of developing type 2 diabetes, CVD and MAFLD, however it does not mention kidney disease.[216] The Brazilian Society of Hepatology published a consensus statement on the management of MAFLD in the same year which details its close relationship to type 2 diabetes and CVD, however again it does not mention kidney disease.[217]

Disease statistics

- Estimated prevalence of CKD (stages 3 to 5) in adults is 6.7%, tripling in individuals aged 60 years or older[218]
- Cardiovascular diseases account for 22% of all deaths[219]
- 19.8% of Brazilians live with obesity[220]
- 13.7% of the over 25s have type 2 diabetes[221]

Canada snapshot

Canada has a universal healthcare system (Medicare). This is administered via 13 provincial and territorial health care insurance plans. While the federal government is responsible for setting national standards and providing funding, provincial and territorial governments are largely responsible for the delivery of healthcare services.[222]

In 2023 the federal government agreed a set of priority areas for the health system including primary care access, improving workforce supply, electronic health information and aging with dignity.[223]

The national Government has published an array of strategy and partnership documents aimed at improving the prevention and management of chronic diseases.[224][225][226] The most recent plan – Improving Health Outcomes – A Paradigm Shift: Centre for Chronic Disease Prevention Strategic Plan – ran until 2019.[227] This plan recognised the burden of rising rates of NCDs and multimorbidity – however it did not detail specific disease approaches and instead focused on the need for improved research and innovation to tackle the rise of NCDs, as well as more innovative approaches to payment models to improve outcomes. The Government also published annual data on chronic diseases and their determinants between 2013 and 2018.[228]

Federal funding supported the development of a Canadian Heart Health Strategy and Action Plan (CHHS-AP) which was published in 2009.[229] However there has been nothing significant published since on CVD disease management.

Obesity Canada with the Canadian Association for Bariatric Surgeons and Physicians have developed the 'Canadian Adult Obesity Clinical Practice Guideline' which is recognised globally as a leading resource.[230]

While there is no national strategy for liver disease, several local care providers have published a review into the current burden, gaps in management and opportunities to improve diagnosis and management of the disease.[231]

There is no national strategy for the management of kidney disease however the Kidney Foundation in Canada are currently developing a National CKD Framework.[232]

Disease statistics

- Over 20% of deaths are attributable to heart disease or cerebrovascular disease[233]
- 1 in 4 Canadians are affected by liver disease[234]
- 1 in 10 Canadians have kidney disease[235]
- 30% of the population live with obesity[236]
- 9.6% of the population live with diabetes[237] – 90% of which have Type 2 diabetes[238]

- There are stark disparities, type 2 diabetes rates are 5% across the whole population, but 10.3% amongst First Nations living off reserve and 17.2% amongst First Nations living on reserve[239]

China snapshot

China has a universal medical insurance system which covers over 95% of the population.[240] The National Healthcare Security Administration manages all basic health insurance schemes in China.[241] Healthcare expenditure accounts for approximately 6.5% of annual GDP.[242]

The overarching framework guiding health policy in China is Healthy China 2030 which was launched in 2016.[243] The strategy focuses on disease prevention and the promotion of healthy lifestyles. It includes sections on major NCDs including CVD, obesity, and diabetes, although diseases are largely addressed separately, and there is no reference to the interconnectedness of CRM conditions.

Under the Healthy China 2030 initiative, there are several policies and guidelines aimed at tackling CRM conditions. The Medium-to-Long Term Plan of China for the Prevention and Treatment of Chronic Diseases (2017–2025)[244] proposes eight strategic measures to improve the prevention and treatment of chronic diseases. The Implementation Plan for the Prevention and Control of Cardiovascular and Cerebrovascular Diseases (2023-2030)[245] references CVD and diabetes but not liver or kidney disease. There is also a specific Implementation Plan for Diabetes Prevention and Control (2024-2030)[246] and a range of policies and guidelines aimed at tackling obesity.[247]

There is also a separate Technical Plan for the Tiered Diagnosis and Treatment of CKD at country level.[248]

In terms of regional good practice the Cardiometabolic Outpatient Department of Peking University Third Hospital provides individualised and comprehensive management of risk factors such as blood pressure, blood lipids, blood glucose, uric acid, obesity, hypothyroidism, and MASH for patients with multiple metabolic cardiovascular risk factors.[249]

Disease statistics

- The prevalence of CKD is estimated to be 9.2–11.6%[250]
- MAFLD is estimated to impact 30% of the population[251]
- More than 40% of deaths are attributable to CVD[252]
- Diabetes prevalence in Chinese adults aged 20–79 years is projected to increase from 8.2% to 9.7% during 2020–2030[253]
- An estimated 16.4% of adults live with obesity[254]

England snapshot

England has a tax-payer funded healthcare system which is free at the point of use. The strategic direction is set by the Government and currently managed by NHS England – a non-Governmental organisation. The OECD judges the UK healthcare system as delivering "good health outcomes relative to the level of health expenditure and the scale of income inequalities".[255] There are though financial pressures and backlogs of care that have built up through the pandemic.

The most recent strategic document published was the NHS Long Term Plan in 2019 which set out a 10-year vision for the health service.[256] The Plan focuses on the management of CVDs including separate sections for stroke and diabetes. It also highlights obesity as a risk factor for type 2 diabetes, high blood pressure, high cholesterol and increased risk of liver diseases. There is only mention of kidney disease as part of an e-clinic case study.

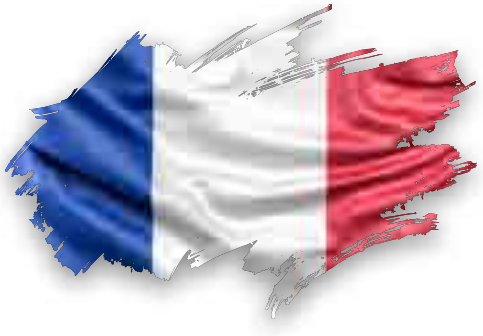
In 2023 the Government published a Major Conditions Strategy framework which prioritised the management of six major disease groups including cardiovascular diseases with a stroke and diabetes highlighted.[257] The document does make reference to kidney disease as a risk factor for CVD but there is no mention of liver disease. The plan notes the importance of integrating care for those with multiple conditions; however disease approaches are still presented in silos. The plan has not been finalised with a new ten year plan to be published in the summer of 2025.

The majority of condition-level national policy in recent years has been focused on reducing rates of obesity[258] [259] and the prevention of CVD though the management of risk factors.[260] There are no national policies set for the management of kidney or liver disease however there are some emerging medical models which are being trialed and evaluated within the health system including a cardio-metabolic clinic at St George's Hospital, London[261] and a Cardio-nephrology multi-disciplinary model approach at Aintree University Hospital, Liverpool.[262]

Disease statistics

- 10% of the population are estimated to have CKD[263]
- There are more than 10,000 premature deaths due to liver disease each year[264]
- Cardiovascular diseases account for 27% of all deaths[265]
- 5.8 million people in the UK are living with diabetes[266]
- The obesity rate for adults in England is 26.2%[267]

France snapshot



The French health system is universal and is built upon a social health insurance model. As a result there are low rates of unmet care needs for financial reasons and high patient satisfaction. There does however exist variation in care across the country particularly with respect to specialist care access.[268]

France's National Health Strategy 2018 – 2022 included a focus on prevention and the early detection of chronic diseases.[269] More recently, the Government have been consulting on an updated strategy which includes commitments to tackle cardiovascular disease, obesity and diabetes.[270] It also has a focus on integrating care for patients supported by specialist nurses.

In 2019 the Government legislated for the provision of Specialised Care Teams (SCTs) which consists of a multidisciplinary specialist team to support primary care teams.[271] Additional funding has been made available since 2025 to support SCTs.[272]

The National Health Insurance (NHI) organisation reports each year to set out priorities. In its latest report for 2025, it notes that it is deploying tools to promote the improvement of chronic disease care pathways and to identify pathologies earlier and, thus, reduce the risks of serious consequences of cardiovascular and associated diseases (CVAD) in which diabetes and CKD are listed.[273]

In 2024 HAS, the French HTA body, updated its guidelines for treating type 2 diabetes[274] which includes a focus on prevention, screening and treatment of cardiovascular and renal complications. It also has guidelines for the treatment of obesity[275], CKD[276] and liver disease.[277]

The National Academy of Medicines issued a position in 2024 entitled 'Paradigm shift in cardio-nephro-metabolic diseases' in which they mention that the paradigm shift in cardio-nephro-metabolic diseases requires the development of new interdisciplinary therapeutic strategies and better organised care pathways within the framework of evidence-based medicine.[278]

Disease statistics

- 201.8 CVD attributable deaths per 100,000[279]
- 17% live with obesity[280]
- 8.6% prevalence of diabetes[281]
- Estimated 10.5% of the population have CKD[282]
- MASH is estimated to impact 25% of the population[283]

Germany snapshot

Health insurance is compulsory in Germany and provided either under the statutory health insurance (SHI) scheme or through substitutive private health insurance (PHI). Responsibilities for planning are divided between the federal government, the states and various institutions at the corporatist level. Germany's health expenditure is among the highest in Europe.[284]

There is no national health plan to steer overall policy development in the health system, However since 2000 10 National Health Goals (Gesundheitsziel) have been developed.[285] These include goals around reducing the risk of diabetes, growing older healthy, as well as preventative goals around reducing tobacco and alcohol consumption. Several of these goals were included in the Prevention Act of 2015, designed to strengthen disease prevention and health promotion.[286]

Disease Management Programmes is the principal policy framework for chronic disease management in Germany and was introduced in 2002.[287] The focus of these programmes is improving quality of care and includes programmes for diabetes, coronary heart disease, chronic heart failure and obesity. There is no specific programme for kidney disease but it is listed as a co-morbidity of other conditions.

A Health Heart Law was being drafted in 2024 with the aim of combatting cardiovascular diseases more effectively, however the collapse of the Government and subsequent election has paused progress with this new law.[288]

Disease statistics

- Approximately 10% of adults in Germany have CKD[289]
- Cardiovascular diseases are the leading cause of death in Germany, causing a total of approximately 40% of all deaths[290]
- Nearly one-fifth of adults (19%) have obesity[291]
- About 8.5 million people suffer from diabetes[292]
- A high proportion of people aged 65 and over report living with multiple chronic conditions (41% in 2020)[293]

Italy snapshot

Italy's health system is universal for its citizens and residents and funded nationally. However the regions are responsible for managing budgets and the provision of services. Italy spends 8.7% of its GDP on healthcare services which is lower than the European average.[294]

The Government's National Prevention Plan 2020 – 2025 details tackling chronic NCDs as one of six macro objectives. It also aligns itself with the UN 2030 agenda.[295] Each region in Italy has been asked to develop a local plan based in its recommendations.

Italy's National Chronic Disease Plan (PNC) first published in 2016 and updated in 2024 focuses on the prevention, care and treatment of chronic diseases. The latest Plan notes the importance of transitioning to a network model which values both specialist and primary care healthcare professionals.[296]

In 2021 a national CVD prevention plan was published which focuses on primary prevention.[297] Guidelines for the management of diabetes were published in 2012 which includes a focus on the control of CVD risk factors.[298] There are also CKD management guidelines which were published in 2014.[299] More recently a national obesity prevention plan has been published (2022).[300]

While there is no national interconnected policy for CRM, there are regional examples of good practice. The Lombardy region has introduced a health programme in 2025 which focuses on delivering strategic advancements in cardiovascular care with a particular focus on telemedicine, networked hospital models and community-based healthcare.[301] There is a particular focus on the management of patients with cardiovascular and diabetic conditions.

Disease statistics

- 44% of mortality can be attributed to CVD[302]
- 12% population are obese[303]
- An estimated 22.5-27% of the population live with MAFLD[304]
- 6.7% of the population are estimated to have CKD[305]

Japan snapshot

Japan has a statutory health insurance scheme which provides universal coverage. However there is a co-insurance payment requirement of 30% for most services and some additional co-pay costs. This is however capped to a monthly maximum. While the national Government sets the fee schedule, Japan's prefectures develop regional delivery systems.[306]

Japan 2035 is a national 20 year Government vision set for its healthcare system focused on delivering a sustainable service and unmatched health outcomes.[307] It has a particular focus on integration and utilising advances in technology to deliver improved health outcomes.

Japan's National Health Promotion Movement (Health Japan 21) first launched in 2001 as a 13-year national health promotion policy aimed at preventing and controlling NCDs and their underlying risk factors.[308] The plan was revised for a further 10-years in 2012, and then again in 2023.

The Japanese National Plan for Promotion of Measures against Cerebrovascular and Cardiovascular Disease aims to extend healthy life expectancy by 3 years by 2040, compared with 2016 and to decrease age adjusted mortality of cerebrovascular and cardiovascular disease.[309]

Japan introduced the Metabo law in 2008 which essentially formalises occupational health interventions in those overweight/obese in the middle-age to elderly population.[310] Results thus far have been positive with reductions in obesity and cardiometabolic risk.

There has been a concerted effort by the Japanese Government to improve the prevention, care and treatment of its CKD population given high and rising levels of prevalence. Much of this has focused on early identification and appropriate referral to a nephrologist with an ambition to reduce the number of new dialysis patients.[311] It is also expected that CKD will be included in the Japanese Ministry of Health, Labor and Welfare's 8th Medical Care plans.

More widely Japan's Agency for Medical Research and Development has launched a moonshot R&D programme which includes a goal to realise ultra-early disease prediction and intervention by 2050 – including for chronic diseases such as diabetes.[312]

Disease statistics

- In Japan more than half of deaths are attributed to NCDs[313]
- CVD mortality stands at 291 per 100,000 of the population[314]
- 11.8% prevalence of diabetes[315]
- Approximately 13% of the population are estimated to have CKD[316]
- Estimated 30% of the population have MASLD[317]
- Adult obesity in Japan impacts 5.5% of its population[318]

Mexico snapshot

Mexico has a healthcare insurance funded system for those who are employed which includes obligatory contributions from employers, employees and the Government. For those who are uninsured there are a limited number of free health services available. However due to widespread dissatisfaction with the health service, the private sector provides nearly half of outpatient care on a fee-for-service basis.[319]

In October 2024, Mexico announced the implementation of the National Development Plan 2025-2030, which establishes seven key strategic health objectives including a focus on reducing obesity, hypertension and diabetes.[320] This was followed by the publication of the National Health Plan 2024-2030 in November 2024 which includes the following five key strategic objectives:[321]

- Promote health and prevent diseases
- Improve the quality of medical care and reduce waiting times
- Strengthen the IMSS Bienestar system
- Guarantee the availability of medicines, supplies, and equipment in all clinics and hospitals
- Modernize the healthcare sector through digitalization and the creation of a unified care model, including a universal electronic medical record

A National Strategy for the Prevention and Control of Overweight, Obesity, and Diabetes was published in 2013 which aimed to improve public health and mitigate the social and economic costs of these conditions.[322] The Mexican Social Security Institute (IMSS) then published a comprehensive care programme called 'A Todo Corazon' in 2015 which is focused on the prevention, diagnosis, treatment, and rehabilitation of those living with cardiovascular diseases.[323]

More recently the Specific Action Programme for Cardiometabolic Diseases 2020-2024[324] has been published by the Secretaria de Salud which focuses on the prevention, detection, diagnosis, treatment and control actions for the most prevalent cardiometabolic diseases in the Mexican population (obesity, Type 2 Diabetes, hypertension and dyslipidaemias), in order to help reduce morbidity, complications and mortality. The document also signals an ambition to integrate care for patients with multiple chronic conditions. Mexico has also implemented the HEARTS initiative, in collaboration with the Pan American Health Organization (PAHO), which seeks to improve the prevention, detection, diagnosis, treatment and control of high blood pressure and diabetes.[325]

The Redes Integradas de Servicios de Salud (Integrated Care Networks) initiative, has shown promise in several states in Mexico by connecting different levels of care to better manage chronic diseases such as diabetes and hypertension.[326]

As part of the effort to standardise and improve the quality of medical care across the country, Mexico has developed the National Medical Care Protocols (PRONAM). These standardised clinical guidelines establish technical and operational criteria for the care of key disease burdens such as obesity, type 2 diabetes, hypertension, dyslipidemia, and chronic kidney disease, ensuring comprehensive, timely, and evidence-based care across all public healthcare institutions.

Disease statistics

- CVD is the leading cause of mortality, accounting for 20% of total deaths[327]
- Obesity impacts 37.1% of adults aged 20 and older[328]
- 18.4% of the adult population has diabetes[329]
- MASLD is estimated to impact 41.3% of the population[330]
- CKD prevalence is estimated to be around 9.2% of the population[331]

Spain snapshot

Spain's healthcare system (Sistema Nacional de Salud, SNS) is almost universal and mainly funded by taxes.[332] Responsibility for health sits at regional level (known as 'autonomous communities'), while the Ministry of Health is responsible for the overall coordination of the SNS and for producing healthcare plans and strategies.[333]

The overarching framework guiding health policy in Spain is its 2022 Public Health Strategy.[334] While the strategy discusses cardiovascular, renal and metabolic conditions, and to some extent their interconnectedness there is much more of a focus on cancer.

The Government did publish a strategy aimed at tackling chronic diseases more broadly but this is now somewhat outdated having been originally published in 2012, with a short update in 2021.[335]

Spain published its Cardiovascular Health Strategy of the National Health System (ESCAV)[336] in 2022 which is focused on reducing the prevalence of cardiovascular diseases, as well as their risk factors. As well as prevention, it covers approaches to patient care and rehabilitation.

There is also a National Strategic Plan for the reduction of Childhood Obesity (2022-2030).[337]

While there are no national guidelines or plans for other CRM conditions there is a Spanish adaptation of the European Guidelines on Cardiovascular Disease (CVD) prevention in clinical practice (2021).[338]

There is also a National Liver Health Plan: 2032 Challenge initiative published by the Spanish Association for the Study of the Liver (AEEH) that seeks to comprehensively address liver diseases in Spain.[339]

The Institute for Global Health in Barcelona and Hospital Universitario Virgen del Rocío in Seville are spearheading the Clinical Care Pathway Assessment Project (CARPA). This three-year project aims to determine the optimal referral pathway for patients living with MASLD and MASH, from primary care to liver specialists. About 7,000 patients at risk of MASLD-related fibrosis will be recruited, and two diagnostic pathways (ELF testing vs Fibroscan®) will be assessed across 11 primary care and other non-hepatology specialist settings (e.g. endocrinologists, diabetologists).[340]

Disease statistics

- CVD is the number one cause of death in Spain, accounting for 26.6% of total deaths[341]
- 15.1% of the population are estimated to have CKD and it ranks as the eighth most common cause of death[342]
- Type 2 diabetes prevalence is estimated to be 14.8% of the adult population[343]
- 15.7% of the population live with obesity[344]
- The estimated prevalence of MASH in Spain's adult population is 1.33%[345]

South Korea snapshot

The South Korean Healthcare System is a single payer system organised through the National Health Insurance Service (NHI) – virtually all citizens are members of this scheme.[346]

Funding for the NHI comes from contributions from those who are insured as well as government subsidies. There is also a medical aid programme which is a form of public assistance and uses government subsidies to provide low-income groups with healthcare services.[347]

The Ministry of Health and Welfare (MoHW) oversees the National Health Insurance system and its two main bodies; the NHIS and the Health Insurance Review & Assessment Service (HIRA). NHIS serves as the insurer, and HIRA conducts claims reviews and quality assessment of health care services.[348]

The National Health Plan sets the long-term direction for health policy in Korea. Published by the MoHW, a new national health plan is published every ten years, and the plans are also supplemented every five years.[349][350]

The current National Health Plan was published in 2020 and will run until 2030. The plan's guiding vision is "a society where everyone enjoys life-long health" and it has the following two goals: (1) Extending Healthy Life Expectancy (70.4 years in 2018 to 73.3 years in 2030); (2) Promoting health equity.[351] Concerns have been noted that the National Health Plan 2030 is currently off-target with a lack of improvement in key health indicators, including health behaviours, hypertension, diabetes, obesity, and cancer rates. Budgets have not kept pace with rising patient numbers, and workforce shortages persist, especially in primary care.

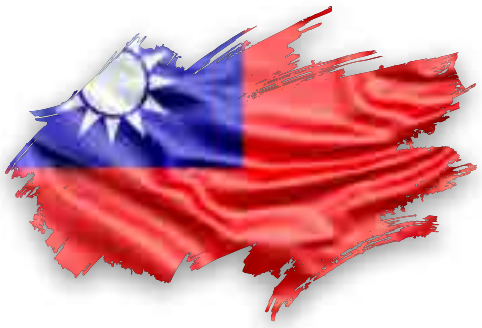
South Korea has an act on the Prevention and Management of cardio-cerebrovascular diseases, although it makes no mention of interconnectedness with CRM conditions.[352] A national obesity prevention plan is being discussed and the Korean Society of Nephrology (KSN) have published their Kidney Health Plan 2033 aiming to reduce diabetic kidney disease by 10%.[353] In addition, the Primary Care Chronic Disease Management Program, piloted successfully, was rolled out nationally in 2024, demonstrating improved hypertension management and increased patient trust in primary care.

The Health Insurance Review and Assessment Service (HIRA) has also operated the National Diabetes Quality Assessment Program (NDQAP) annually since 2011 to monitor and improve diabetes care quality. There is no plan for liver disease but South Korea does have a National Strategic Plan for Viral Hepatitis Control.[354]

Disease statistics

- CVD was the most common cause of death until 1999, but thereafter cancer was the number one cause of death (CVD ranking second).[355] South Korea is among the countries with the fastest decline in age adjusted CVD mortality worldwide and ranks in the bottom 20% of countries for age-standardised mortality from CVD (when ranking from highest to lowest)[356]
- The prevalence of diabetes is 12.5% among individuals aged 19 and older, and 14.8% among individuals aged 30 and older as of 2022[357]
- In 2023, the overall obesity rate among adults aged 30 and over was 33.7%; for all adults, the rate was 27.2%[358]
- In 2023, researchers estimated the prevalence of CKD in South Korea to be 6.3%[359]
- Prevalence of MAFLD in Korea was estimated to be 30.3%-31.5% in 2022[360]
  A 2023 study found that the prevalence of fatty liver disease among Korean adults aged 20 years and over had increased from 13.3% in 2009 to 15.5% in 2017[361]

Taiwan snapshot



Taiwan adopted a national health insurance system in 1995. It is a government administered insurance-based national healthcare system.[362]

The Healthy Taiwan Promotion Committee was established by the Presidential Office in June 2024 to tackle the challenges of an aging population and the increasing burden of non-communicable diseases. The committee comprises people from government, medical, and private sectors and focus on preventive healthcare, digital health technologies, and cross-departmental collaboration.[363]

The initiative has set targets that by 2028, 80% of patients with hypertension, diabetes, and hyperlipidemia will be part of the "Collaborative Care Program" driven by the "Everyone's Health Plan" for holistic management and tailored care based on risk levels, with 80% receiving consultations. By 2030 the aim is for 80% of patients in the Collaborative Care Program to control their blood pressure, blood sugar, and blood lipids. This is known as the 888 Plan.[364] As part of this and in response to World Heart Day, the National Health Insurance Administration (NHIA) announced a collaboration to implement clinical pathways for atherosclerotic cardiovascular disease (ASCVD) risk classification and blood lipid management. The aim of the initiative is to safeguard the health of all Taiwanese people by enhancing the prevention and treatment effectiveness of cardiovascular diseases.[365]

Taiwan has sought to develop more integrated models of care for patients with more than one chronic condition. Taiwan's Family Doctor Plan (FDP) for example, targets high-cost and chronic patients, incorporating key elements of integrated care, case management, multidisciplinary teams and care pathways.[366]

In order to detect and intervene early for control and treatment, the Ministry of Health and Welfare implemented a nationwide integrated screening service through medical institutions and community organisations. This service provided preventive healthcare services for adults aged 40-64 every three years, and for those aged 65 and over, annually. In 2023, over 2.154 million individuals received these services.[367]

Disease statistics

- According to the Ministry of Health and Welfare (MOHW), NCDs, including cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes, are responsible for nearly 80% of deaths in Taiwan
- Moreover, 92.4% of older adults have at least one chronic disease, and 56.6% have three or more
- In 2020, the top three conditions causing the highest healthcare expenditure were acute renal failure and chronic kidney disease (8%), diabetes (5.2%), and hypertension-related conditions (3.5%)[368]

Turkey snapshot

Health services in Turkey are financed through a social security scheme covering the majority of the population, the General Health Insurance Scheme and services are provided both by public and private sector facilities.[369] At a National Level, Turkey's Ministry of Health has a strategic plan covering a five year period (2024-2028). The plan focuses on empowering practitioners in diagnosis and treatment for NCDs such as CRM via mostly preventive healthcare measures.[370]

Reducing the impacts of cardiovascular disease is a priority for Turkey. Turkey does have a set of separate disease plans for cardiovascular disease[371], chronic kidney disease[372], diabetes[373] and obesity.[374] There is no plan for liver disease but there is a plan for viral hepatitis.

The Turkish government established a digital single and unique data-warehouse called e-Pulse in order to allow all layers of national healthcare system to have access to patient history in a way to deliver more joined-up and coordinated care for patients including those with CRM.[375]

Disease statistics

- 36% of all deaths in Turkey are from CVD[376]
- 15.9% of the population have diabetes and 32.1% of the adult population are obese[377][378]
- The prevalence of CKD in Turkey is 15.7%[379]
- MAFLD is highly prevalent, with studies indicating a prevalence of around 48.3%. Liver disease deaths in Turkey reached 6,340 in 2020, representing 1.63% of total deaths[380]

UAE snapshot

According to Alshamsi 'the UAE has a relatively robust public healthcare system, which include the ministry of health and prevention (MOHAP) and a developing private sector. MOHAP is a centralised management organisation that oversees healthcare facilities nationwide; however, each emirate regulates its local facilities to manage and allocate resources. Other public healthcare systems in the UAE include the Health Authority of Abu Dhabi (HAAD), Dubai Health Authority (DHA), and the Emirates Health Services (EHS). While Abu Dhabi and Dubai have their own authorities, EHS operates as a regulating and licensing authority for the remaining five emirates.'[381]

The UAE has a national health strategy through the UAE Vision 2021 National Agenda and the National Health Strategy 2017-2021, led by the Ministry of Health and Prevention (MOHAP).[382] These plans aim to establish a world-class health system, emphasising improved quality of care and health outcomes for all residents. They seek to interconnect care by integrating patient data and services across public and private providers, notably through initiatives like the Malaffi Health Information Exchange (HIE) in Abu Dhabi, which links over 2,000 facilities for seamless access to medical records. The strategy focuses on both preventive measures (e.g. screening for chronic diseases) and treatment coordination, aiming to enhance care delivery for patients with chronic conditions.

Cardiovascular disease is addressed under the Weqaya Program in Abu Dhabi (launched 2008) and as a priority in UAE Vision 2021, with a goal to reduce CVD mortality. MOHAP also targets CVD risk factors like obesity and hypertension through broader public health efforts. There are separate plans for tackling diabetes and obesity.[383] There are no standalone plans for chronic kidney disease or liver disease.

In 2024 the Dubai Health Authority published a plan to tackle cardiometabolic syndrome based on exceedingly high incidence of cardiometabolic diseases, particularly impacting young patients and leading to a high burden of premature CVD events. The plan includes a focus on screening and earlier diagnosis of patients and an extensive list of related conditions and associated risk factors – including obesity, diabetes, chronic kidney disease and chronic liver disease.[384]

Disease statistics

- CVDs account for 36.7% of all deaths in the UAE[385]
- Current obesity prevalence rate is 31.7%
- 40.7% of diabetes cases in the UAE are undiagnosed
- The Weqaya Program in Abu Dhabi showed an overall prevalence of hypertension of 23.1%
- According to a cross-sectional population-based study conducted in the UAE, metabolic syndrome prevalence was 37.4%[386]

USA snapshot

The US healthcare system does not provide universal coverage.[387] The Government does currently fund two programmes – Medicare (for the elderly and disabled) and Medicaid (for those living in poverty and disabled, elderly or pregnant / parent of a dependent child).[388]

The priorities and policies of the healthcare system are currently undergoing substantial change following the most recent presidential election.

In recent years there have been a number of national policies and initiatives aimed at tackling the rising burden of CRM conditions.

The US Strategic Plan for 2022-2026[389] set under the Biden administration put forward the strategic direction and ambitions for the U.S. Department of Health and Human Services. Strategic Objective 2.2 is to "protect individuals, families, and communities from infectious disease and non-communicable disease through equitable access to effective, innovative, readily available diagnostics, treatments, therapeutics, medical devices, and vaccines." This is due to be replaced by the work of the Make America Healthy Again Commission as part of President Trump's second term.[390] The Commission aims to 're-direct our national focus, in the public and private sectors, toward understanding and drastically lowering chronic disease rates and ending childhood chronic disease.'[391]

Healthy People 2030 published by the Office of Disease Prevention and Health Promotion under the first Trump administration set data-driven national objectives to improve health and well-being over the next decade. It included specific, measurable objectives around CKD, cardiovascular disease, diabetes and obesity.[392]

Advancing American Kidney Health was also published under the previous Trump administration and set out a vision for the diagnosis and treatment of kidney disease in the US. The plan recognised the need to address upstream risk factors like diabetes and hypertension.[393]

The U.S. Centers for Disease Control and Prevention (CDC) launched the National Diabetes Prevention Programme in 2010 which aims to address the increasing burden of prediabetes and Type 2 diabetes in the US.[394]

The Million Hearts is a national initiative co-led by the CDC and the Centers for Medicare & Medicaid Services (CMS) with the aim of preventing one million heart attacks and strokes by 2027.[395]

The disease related policies outlined above are mainly focused on the direct management of the relevant diseases with limited recognition of the broader interconnectedness of other related CRM conditions.

One example of greater interconnectedness is the work of the Indian Health Service, the Federal Health Program for American Indians and Alaska Natives which has put in place a best practice programme for screening people with diabetes for CKD. The screening is done by a urine albumin-to-creatinine ratio (uACR) test. Regular screening and monitoring allow for intervention which may help slow CKD progression.[396]

Disease statistics

- Approximately 1 in 4 adults have a CRM condition, and nearly 1 in 10 have multiple CRM conditions[397]
- 15% of the population are estimated to have kidney disease.[398] The total costs of patients with kidney disease, including those with co-morbidities such as heart failure and diabetes through the Medicare programme is $135 billion[399]
- 25% of the population are expected to develop MASLD[400]
- CVD is responsible for 20% of deaths[401]
- 41.9% of adults live with obesity[402]
- 11.6% of the adult population has diabetes[403]

APPENDIX I: METHODOLOGY AND INTERVIEWS

To develop this research report Future Health undertook an extensive desk top based evidence and literature review and a series of expert interviews.

The literature and evidence review was carried out in the autumn of 2024. This was based on a five stage approach

- **STAGE 1:** Identified a series of key terms for the work. These were then used in a web-based literature search. A review of these sources was then used to develop a final set of terms for conducting the literature and evidence review
- **STAGE 2:** These search terms were then put through a web-based search and Google Scholar to identify relevant publications. In addition, key organisations at a national, regional and local level were also specifically targeted to ensure they were captured (NGOs, patient organisations etc.)
- **STAGE 3:** These searches were then used to identify anchor literature of importance. A snowballing strategy was then used to identify additional sources.
- **STAGE 4:** Literature and evidence gathered was then assessed on its relevance to the research question by the researchers.
- **STAGE 5:** Finally, the literature and evidence gathered was cross checked against geographical spread. Additional searches were then run for regions under-represented in the initial sampling

From this process a series of priority countries and themes were identified for further exploration in the research.

Future Health then undertook interviews with a range of experts on both a thematic and country level basis to inform the findings of this paper. Future Health thanks all those who kindly took time to contribute to the work (see below).

All views in this report are those of Future Health and should only be attributed as such.

Research interviewees

Name	Role	Organisation
Alison Railton	Director of Policy and Public Affairs	Kidney Research UK
Ana Miguel	Former Coordinator of the Strategy of Patients with Chronic Diseases in the Community of Madrid	Madrid Health Service
Axel Heitmuller	Visiting Professor	Institute of Global Health Innovation
Charlotte Refsum	Health lead	Tony Blair Institute
Dr Niamh-Lennox Chhugani	Chief Executive	International Foundation for Integrated Care
Dr Prajjwal Pyakurel	Co-chair of NCDs working group. Also Cardiovascular Epidemiologist and Community Physician in Nepal	World Federation of Public Health Associations
Dr Rafael Bengoa	Former Minister of Health	Spanish Government
Dr Richard Lewanczuk	Senior Medical Director, Health System Integration / Professor Emeritus, Department of Medicine	Alberta Health Services / University of Alberta
Ed Middleton	Harkness Fellow	Commonwealth Fund
Elizabeth Hampson	Partner	Deloitte
Francesca Colombo	Head of Health Divison	OECD
Gareth Presch	CEO	World Health Innovation Summit
Hanno Ronte	Partner	Deloitte
Joanna Laurson-Doube	Policy And Advocacy	NCD Alliance
Mark Dayan	Head of Public Affairs	Nuffield Trust
Miguel Ángel Díaz-Aguilera	Adviser of NCDs - National Center for Prevention and Disease Control	Secretariat of Health, Mexico
Nigel Edwards	Expert Adviser	European Observatory on Health Systems and Policies
Professor Linong	Professor of Medicine and Director of the Peking University Diabetes Center	Peking University
Professor Sir Chris Ham	Former Director of Strategy at Department of Health and Social Care	UK Government
Rosalind Turkie	Policy and Advocacy Officer	NCD Alliance
Simon Radford	Director, Policy and Programming	Milken Institute
Swati Bhagat-Jones	Multiple Long Term Conditions Programme Lead	Kidney Research UK

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