

5 Screening and early detection of diseases

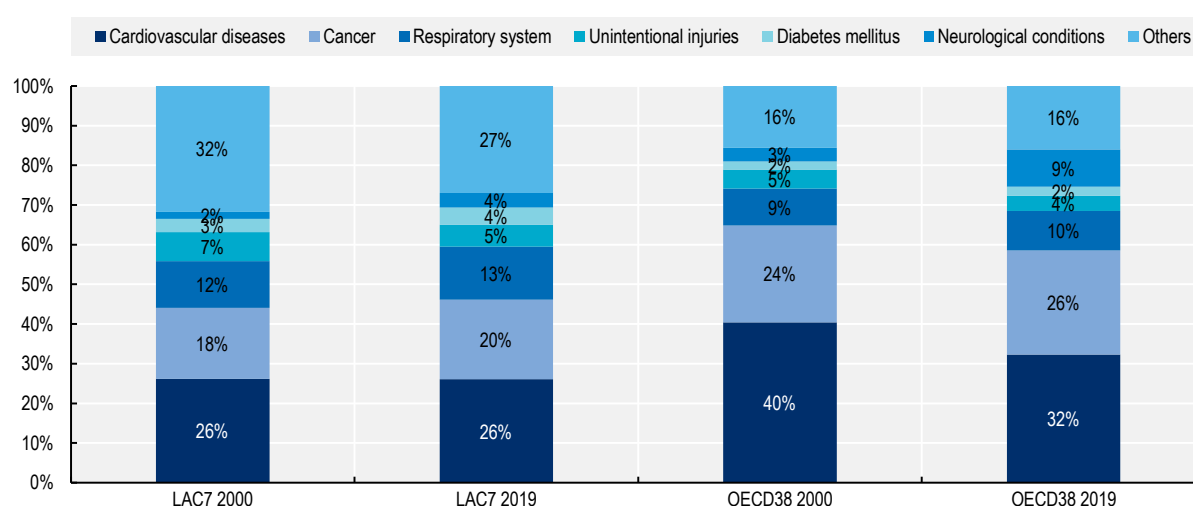
As the first and main point of contact with the health care system, primary health care is best placed to detect disease at the early stage to halt its progress. However in LAC-7 countries, despite the existence of comprehensive guidelines on screening services, coverage of screening for breast and cervical cancer, and for hypertension and diabetes is low. Moreover, during the health emergency, while innovative approaches made important contributions to the pandemic response, screening and early detection services for non-COVID-19 severely decreased between 2019 and 2020, with potential long lasting effect for patients. The chapter presents an overview of LAC-7 countries' performance in screening and early detection of disease before and during the health emergency, and provide evidence of disruption of disease detection during the COVID-19 pandemic.

Introduction

In both LAC-7 and other OECD countries, three chronic non-communicable diseases (NCDs) are the leading causes of death: cardiovascular diseases, cancer and diabetes. Cardiovascular diseases and cancer represented 46% of all deaths in LAC-7 countries and 58% in other OECD countries in 2019. Diabetes stands as the fifth cause of mortality in LAC-7, representing 4% of all deaths, higher than the 2% across other OECD countries (Figure 5.1). The LAC-7 region is confronted to an increasing prevalence of long-term, chronic non-communicable disease, due mainly to evolutions in their population structures and demographic profiles and rising prevalence of risk factors for health. The performance of the health system to provide timely diagnosis and treatment also play a key role to explain the leading causes of death.

Figure 5.1. Main causes of mortality in LAC-7 and the OECD in 2019

Percentage of total deaths



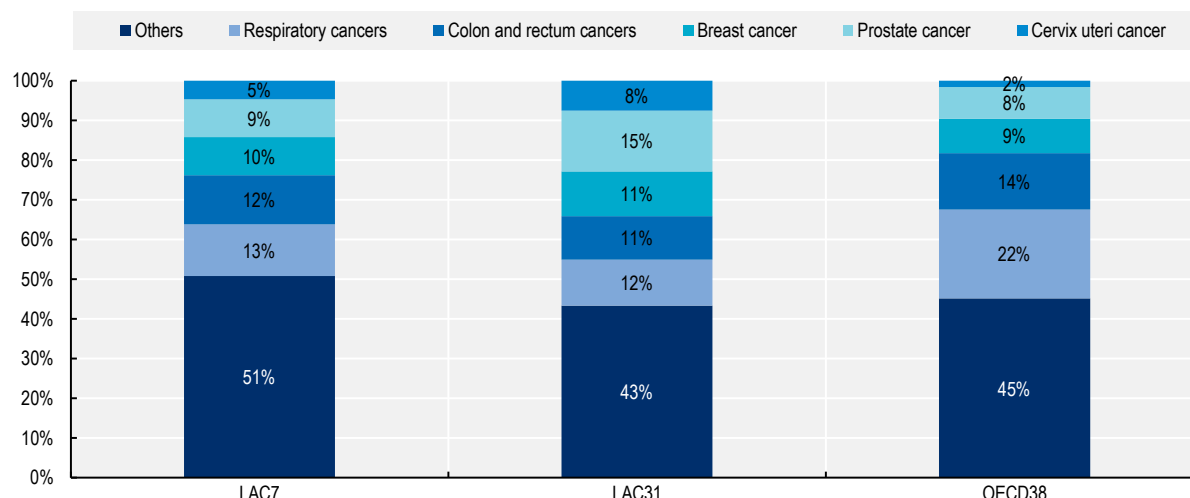
Note: Based on estimated deaths, 2019.

Source: WHO (2019^[1]), The Global Health Observatory, <https://www.who.int/data/gho>.

Diagnosing disease at an early stage improves health outcomes (both morbidity and mortality) by providing care at the earliest possible stage (WHO, 2022^[2]). Aiming at improving the performance and capacity of their PHC systems, LAC-7 countries have built mechanisms to screen for some of the most epidemiologically relevant diseases (OECD, 2021^[3]). Cervical, breast and colon-rectum cancers represent 31% of all cancer related deaths in LAC-7 in 2019 and similar percentages are seen in other OECD countries (Figure 5.2). It is estimated that around 30% of cancer cases can be cured if they are detected and treated early (PAHO/WHO, 2022^[4]). Similarly, screening of hypertension and diabetes leads to early diagnosis and treatment, and can have important positive effects in patients' health outcomes (US Preventive Services Task Force, 2021^[5]; WHO, n.d.^[6]; Jin, 2021^[7]).

Figure 5.2. Mortality burden of cancer in LAC-7 and the OECD in 2019

Percentage of total cancer deaths



Note: Based on estimated deaths, 2019.

Source: WHO (2019^[1]), The Global Health Observatory, <https://www.who.int/data/gho>.

Early detection of disease include both the screening of healthy patients at risk and providing diagnosis for symptomatic patients as early as possible. Early detection is a determinant not only on the expected health outcome of the patient, but also in the expected financial cost and future utilisation of health care resources (Sroczynski et al., 2020^[8]; Ratushnyak, Hoogendoorn and van Baal, 2019^[9]; Rubin, Vedsted and Emery, 2011^[10]). Primary health care (PHC) is an important actor on early detection (OECD, 2020^[11]), usually performing routine clinical examinations and recommending tests, and nudging towards and implementing screening programmes to the population.

The chapter explores the performance of LAC-7 countries in the second function of PHC, screening and early detection of diseases. The second section explores the range of diseases included in the countries' screening and early detection strategy, followed by an examination of the structural capacities in place, and the coverage of the screening efforts in LAC-7 countries. The third section explores the capacities built and the performance of the LAC-7 countries for early detection of COVID-19. The fourth section assesses the COVID-19 impact on screening and early detection of non-COVID-19.

Implementation challenges undermine comprehensive early detection and screening programmes

All LAC-7 National Health Plans describe high-level aims and goals regarding early detection and screening. Different stakeholders transform the high-level goals into practical guidelines, and create the plans for early detection of specific diseases. The range of diseases included in early detection programmes varies across countries, but cancers (breast, cervical, colorectal), diabetes and hypertension, and antenatal and childcare are common across LAC-7. A selected list of screening and early detection programmes in LAC-7 are presented in Table 5.1.

In Mexico, PHC services are well-positioned to deliver screening services and reduce delays in diagnosing NCDs; however, these services face critical challenges that reduce the effectiveness of screening programmes. While early detection programmes in the country describe care pathways and performance

indicators, there is no assignment for or accountability framework to the system stakeholder. Screening and early detection programmes in Mexico have changed towards population-based programmes in recent years, while before it was opportunistic (OECD, 2021^[3]). However, several challenges have been highlighted by previous studies including limited access to treatment and follow-up after diagnosis due to scarce resources and poor-quality control (Chávarri-Guerra et al., 2012^[12]). This has been associated with high rates of cancer mortality in Mexico (Chávarri-Guerra et al., 2012^[12]). At the same time, the Mexican programme for antenatal care (Table 5.1) has been very successful due to a proactive engagement campaign (Serván-Mori et al., 2020^[13]). The programme co-ordinates, and assigns responsibilities of outcomes to the health service providers. It also considers the active recruitment of target population (from a pregnant woman census) and fosters link with a social network to create additional support for the patients (Mexico Ministry of Health, 2013^[14]).

Colombian screening and early detection programmes (Table 5.1) describe goals and outcome indicators, together with evaluation systems and pathways, protocols and responsibilities of stakeholders. However, the programmes are restricted to guidelines and there is no accountability framework to monitor outcomes and performance of providers. This results in a low adherence to guidelines (Colombian National Cancer Institute, 2019^[15]), and as a result cancer care quality measures related with staging and early diagnosis suggest low performance at national level (CAC, 2021^[16]). Early detection can happen through both opportunistic and population based initiatives, but there is no strategy to actively reaching out to target population.

Chile has a national programme for screening and early detection that includes several screening tests along the lifecycle of the population (Box 5.1). The specific programme in place for antenatal and childcare “Chile crece contigo” (“Growing together”) includes a comprehensive set of screening exams from the moment of the first antenatal check-up until the start of primary school. The programmes have a population-based approach for people enrolled in the public scheme, linked to the mandatory registration with PHC. Further, there is accountability for performance measures (such as coverage rates) based on a pay for performance incentive scheme for PHC: At least 25% of the adult population and 55% of the older adult population covered by the public health system should be included in screening and early detection life cycle programme. Patient level incentives, such as eligibility for subsidies, are in place to actively involve families and target population into the early detection programme.

Table 5.1. Selected screening and early detections in LAC-7 countries

Country	Programme name	Covered diseases	Institution	Implementation
Brazil	"Programa Nacional de Prevenção e Detecção Precoce do Câncer do Colo do Útero, Programa Nacional de Detecção Precoce do Câncer de Mama e Programa Nacional de Detecção Precoce do Câncer Colorretal"	Breast, cervical and colorectal cancer	National Cancer Institute Ministry of Health	Municipalities Primary health care teams
	Rastreamento	Chronic non-communicable diseases	Ministry of Health	Primary health care centres
Mexico	Programa prevención y control del cáncer de la mujer	Breast and cervical cancer	National Centre for Gender Equity and Reproductive Health	Specialised centres All levels of care
	Programa de Acción Específico; Prevención y Control de la Diabetes Mellitus	Diabetes Mellitus and obesity	Ministry of Health	All levels of care
	Prevención y Control de la Obesidad y Riesgo Cardiovascular.	Obesity, cardiovascular risks, hypertension	Ministry of Health	All levels of care PHC through HEART
	Programa de Salud Materna y Perinatal	Maternal and antenatal health care	National Centre for Gender Equity and Reproductive Health	Coordinated by Municipalities, all levels of care
Argentina	Programa nacional de control de cáncer de mama	Breast cancer	Ministry of Health (via the National cancer institute) in co-ordination with provinces	Municipalities Primary health care units
	Programa nacional de prevención de cáncer cervicouterino	Cervical cancer		
	Programa Nacional de Prevención y Detección del Cáncer Colorrectal	Colorectal cancer		
Peru	Programa presupuestal prevención y control del cáncer	Breast, cervical, colorectal, and prostate cancer	Ministry of Health. General Directorate of Strategic Interventions in Public Health	National, regional and local governments
	Plan nacional para la prevención y control de cáncer de mama en el Perú	Breast cancer		Primary health care units
	Modelo de cuidado integral de salud por curso de vida para la persona, familia y comunidad	Active routine check-ups, hypertension, Tuberculosis, anaemia (under 3 years old)	General directorate for strategic interventions in health, MoH	Primary health care teams
Colombia	Plan Decenal Para el Control del Cáncer	Breast, cervical, colorectal, and prostate cancer	Ministry of Health	Territorial authorities, all levels of care
	Ruta Integral para la Promoción y Mantenimiento de la Salud	Cardiovascular and metabolic risks, anaemia & hearing (childcare), VIH	Ministry of Health	Specific Providers as designed in care pathway
Chile	Examen Medicina Preventiva	25 health problems including breast and cervical cancer, hypertension and diabetes.	Undersecretary of Public Health Ministry of Health	Primary health care
	Chile Crece Contigo	Antenatal and Childcare	Undersecretary of Public Health Ministry of Health	Primary health care
Costa Rica	Programa de tamizaje de cáncer colorrectal	Colorectal Cancer	CCSS facilities such as the "Early Cancer Detection Center" attached to the Dr. Maximiliano Peralta Jiménez Hospital	Primary health care All levels of care
	Programa nacional para la atención y el cuidado del cáncer cervical y de mama	Breast and cervical cancer		
	Programa Llegar a Tiempo	Breast Cancer		

Note: The list is not comprehensive for all screening and early detection programs. Programs were selected following consultations with several experts in LAC-7 countries.

Source: Brazil: INCA (2020^[17]) and Ministério da Saúde (2010^[18]); Mexico: Centro Nacional de Equidad de Género y Salud Reproductiva (2015^[19]), Secretaría de Salud (2013^[20]; 2013^[21]) and Ministry of Health (2013^[14]); Argentina: National Cancer Institute (n.d.^[22]); Peru: Ministerio de Salud (2012^[23]; 2017^[24]); Colombia: Ministry of Health (2020^[25]) and (Instituto Nacional de Cancerología (2012^[26]); Chile: Subsecretaría de Salud Pública (2013^[27]) and Ministerio de Desarrollo y Familia (2022^[28]); Costa Rica: CCSS (2021^[29]) and Ministry of Health (2012^[30]).

Box 5.1. Screening Preventive Health Exam throughout the lifecycle in Chile

In 2013, the Screening Preventive Health Exam throughout the lifecycle was incorporated as one of the 85 conditions with access, opportunity, financial protection, and quality guaranteed by law. The programme consists of several screening tests to be carried out on the general population. When some disorder or health problem is detected, a referral is activated to initiate treatment.

Table 5.2. Target population, health problem and screenings tests

Target population	Health problems	Screening tests
Pregnant women	Gestational diabetes mellitus	Fasting blood glucose
	HIV infection	ELISA test
	Syphilis	VDRL
	Urinary tract infection	Urine culture
	Overweight and obesity	Measurement of weight and height
	Arterial hypertension	Blood pressure measurement
	Drinking problem	Alcohol Use Risk Questionnaire (AUDIT)
	Smoking	Application of instrument 5 "Aes".
New-borns	Phenylketonuria	Phenylalanine in blood
	Congenital hypothyroidism	Plasma TSH levels
	Developmental dysplasia of the hips	Ortolani or Barlow manoeuvre
Infants from 3 months	Developmental dysplasia of the hips	X-ray or ultrasonography of the hips
Children aged 2-5 years	Overweight and obesity	Measurement of weight and height
	Amblyopia, strabismus, and visual acuity defects	LEA primer application
	Bad oral habits	
Adults 15 years and older	Drinking problem	Alcohol use AUDIT
	Smoking	Questionnaire 5 "Ace
	Arterial hypertension	Weight, height, and waist circumference measurement
		Blood pressure measurement
	Diabetes mellitus	Fasting blood glucose
	Syphilis	VDRL
	Tuberculosis	Bacilloscopy
Women 25 to 64 years old	Cervical cancer	Papanicolaou smear
Adults aged 40 and over	Dyslipidaemia	Total cholesterol
Women aged 50 to 59	Breast cancer	Mammography
Adults aged 65 and over	Functional autonomy	Functional assessment of the elderly

Source: Ministry of Health - Chile (2012_[31]) The National Congress Library, Law 19966.

In Brazil, prevention and screening of cancer, diabetes and hypertension are of high importance and included in PHC sector guidelines (OECD, 2021_[31]). There are national programmes for breast and cervical cancer screening, adding recently a programme for colorectal screening. Cancer screening programmes in the country are carried-out at the discretion of health professionals during health visits and routine care, on an opportunistic basis. The Brazilian national screening and early detection programmes include a detailed action plan assigning responsibilities, accountability and a pay for performance incentive scheme to PHC (15% of total funding). With the implementation of the new payment system for primary health in 2019-20 (the "Previne Brazil" programme, see Chapter 3), primary health care teams have financial incentives toward screening. Health care teams (especially the community health agents) are responsible for the identification, search and invitation of the target population for screening. Brazil should keep moving

towards population-based screening programmes for breast and cervical cancer, where every person in the target population is systematically invited to participate, with a personalised approach and communication strategies (OECD, 2021^[3]). At the same time, diabetes and hypertension screening are usually checked by blood pressure and blood glucose during PHC basic check-ups for chronic diseases, alongside other health measurements. However, there are significant challenges in care continuity for these diseases which call for the development of disease management pathways, stronger data infrastructure and better capacity at PHC level (OECD, 2021^[3]).

Costa Rica has a detailed protocol to actively engage patients in the cancer detection, prenatal control, child growth programme and more generally into the development of screening and early detection programmes. At the first contact with PHC, the physician, nursing or dentistry staff apply a cancer prevention questionnaire to the people who consult the services. The questionnaire is registered in a centralised information system on-line. The questionnaire allows for the estimation of the risk of developing some types of cancer and, if deemed target population, there is a referral to more specialised care if necessary. Furthermore, early detection programmes describe the processes and mechanisms for the active invitation of target population.

By contrast, the Peruvian programme for cancer screening (Table 5.1) has been found limited in its ability to improve population coverage (Flores-Flores et al., 2018^[32]). From 2014 to 2018, there have been little to no improvement in coverage of breast cancer screening, even though the country adopted a population-based approach (PAHO/WHO, 2015^[33]). At the same time, the National programme for cervical cancer screening (Table 5.1), the HPV vaccination strategy and the prenatal early detection and control strategies have seen moderate success. The differences in effective implementation might have several causes, but success factors of functioning programmes are related to the new national health plan. Under the new model of care, primary care teams are in charge of providing care, not only focusing in diseases, but attending all the health needs in the community. This includes the responsibilities of PHC teams to send reminders for preventive visits, look for risks in individuals and families, and develop an integral health plan (Peru Ministry of Health, 2020^[34]). However, due to a lack of equipment and capacities, some programmes are still unsuccessful. Further, early detection programmes don't describe a pay for performance incentive scheme or other methods for holding stakeholders accountable for health or care quality outcomes. Across other OECD countries, Finland and Lithuania are good examples of successful programmes to increase coverage of cancer screening (see Box 5.2, Box 5.3, and Box 5.4).

Box 5.2. Improving coverage of cervical cancer screening in Lithuania

Lithuania launched a nationwide cervical cancer screening programme in 2004. General guidelines followed WHO recommendations, offering a Pap smear test within a three year interval for all woman aged 25-60 years old. Primary health care centres were assigned the responsibility of inviting target population to the programme and a set of invitation methods was supported. A pilot intervention was created with the objective of measuring the improvements in cervical cancer screening coverage when actively inviting target population. One urban and one rural primary health care centre were selected, where coverage rates before the study were 9.6% and 14.7% respectively. After sending the first invitation letters, coverage increased to 31.8% in the urban and 40.9% in the rural centres, and after sending the second invitation participation increased to 41.8% and 50.5% respectively. The study concluded that active invitations were very effective for increasing cervical cancer screening coverage, where rural populations were benefitted more. In 2019, Lithuania had a cervical cancer screening coverage rate of 52.5% (10% increase since 2015).

Source: Authors based on Paulauskiene et al. (2019^[35]); OECD (2022^[36]) OECD Health Statistics 2022.

Box 5.3. Screening and early detection in Finland

In Finland, municipalities are responsible for organising screening and early detection programmes and are held accountable for the compliance of national screening targets.

Cancer screening in Finland

Cancer screening is organised at municipal primary health care level through organised population-based programmes, meaning that screening is offered to a specific at-risk target population. Municipalities are supported by the Finnish Cancer Register, which provides experience and know-how, together with data analytics based on the registry of nationwide screening programmes, quality control and evaluation of effectiveness.

The screening programmes are organised under the principle of a “screening action chain”. The action chain is sensible to disturbances and “the failure of the weakest link can destroy the whole operation”, hence, different stakeholders with various functions must work in co-ordination as if it was a single working entity (Institute of Health and Welfare, 2014^[37]). This places special attention to the correct functioning of all elements of the programme, from the determination and identification of the target population, active invitations, testing and analysis, results, arranging the necessary follow-up studies, the treatment of cancer or cancer risk and further monitoring, as well as the recording of data relating to the screening. In 2019, Finland screened 81.3% and 71.3% of target females for breast and cervical cancer while 83.4% of target females and 74.7% males were screened for colorectal cancer (OECD, 2022^[36]).

The Finnish FINDRISC questionnaire for diabetes screening

A national programme for the prevention of Type-2 diabetes exists (T2D). The programme comprises three concurrent strategies for prevention: the population strategy, the high-risk strategy and the strategy of early diagnosis and management. Early detection is found on the second and third strategies. In the high-risk strategy, subjects at high risk of developing diabetes are identified using the Finnish Diabetes Risk Score, FINDRISC. The eight questions tool provides a total test score linked to a measure of the probability of developing T2D. The risk score can be completed on the internet, in pharmacies and at various public campaign events. Primary and occupational health care use this test score for systematic opportunistic screening.

Prenatal screening at municipal level

Finland has a uniform, community-based prenatal care system run by municipal midwives. Municipalities are responsible for offering three antenatal tests to pregnant woman, as part of the national population-based screening programme, including general ultrasound and screenings for chromosomal abnormality and severe structural abnormalities (Chen et al., 2018^[38]). If foetal abnormality is suspected, the pregnant woman is offered further testing (Ministry of Social Affairs and Health, 2022^[39]). The objective is to provide women and families with a risk figure that estimates the chances of having a baby with abnormalities to allow them to make timely decisions and preparations (Chen et al., 2018^[38]).

Source: Authors based on OECD (2022^[36]), Saaristo et al. (2007^[40]), Ministry of Social Affairs and Health (2022^[39]), Institute of Health and Welfare (2014^[37]), Chen et al. (2018^[38]) and Santalahti and Hemminki (1998^[41]).

Box 5.4. Approaches to early detection and the importance of action plans

Population-based screening versus opportunistic screening

There are two distinct approaches to screening programmes. Population-based screening programmes (also known as organised programmes) (Peisl et al., 2019^[42]) are designed and monitored at a central level and consist in reaching out to the target population in an effort to cover as many people at risk as possible. These programmes are characterised by the active identification, search and invitation of the target population (Zhang et al., 2022^[43]). On the other hand, opportunistic screening happens by the recommendation of a health professional during a routine medical consultation or by self-referral of individuals (WHO, 2021^[44]).

Countries spend resources to reach the target population with different strategies, on both population-based programmes and during routine care. For example, a mandatory formulary during routine care identifies Costa Rican patients as target population and immediately activates the co-ordination with different stakeholders for scheduling a screening appointment. This is clearly an active and organised approach to screening that happens at routine visits. On the other hand, such an approach is not as active as the identification of target population using a national registry with a following post invitation for patients to get screened (strategy implemented in Lithuania to improve screening coverage (Paulauskiene et al., 2019^[35]). In this sense, there is a spectrum of how active a country's approach to screening is. The position in the spectrum will be defined by the pathways, responsibilities and accountability described in the national guidelines.

Strategies to increase the effectiveness of early detection

A clearly defined national plan is the first step towards placing early detection of diseases as one of the health system central pillars. All countries in LAC-7 have created such plans for different diseases (Table 5.1), describing target population, screening intervals, and screening tests (Table 5.3, Table 5.4). However, others minimal requirements for having an organised screening plan (Zhang et al., 2022^[43]) are less clear. In particular, referral pathways, management of positive cases and a system to identify eligible populations can be poorly defined in some LAC-7 countries. The inclusion and correct functioning of these items is directly related to the assignment of stakeholder's responsibilities', together with a system to hold them accountable for such responsibilities. A pay for performance incentive scheme can, for example, create an effective system of accountability. Further, to move forward on identification and notification, a centralised information system is an advantage. The Cancer Information System called SISCAN, together with the national health information platform "e-SUS" used at primary care in Brazil and the screening information system called SITAM in Argentina are examples of centralised information systems that support the implementation of screenings and early detection.

While LAC-7 countries have guidelines for early detection of diseases, coverage rates are relatively low in practice

Most LAC-7 countries follow WHO guidelines on screening for chronic diseases

Breast cancer screening recommendations by the WHO differ according to the strength and available resources of the health system. In well-resourced settings, organised population-based mammography screening programmes are recommended for women aged 50-69 years, every 2 years. Screening programmes for women 40-49 years of age and 70-75 years of age (without risk factors) is suggested only if it is conducted in the context of rigorous research, monitoring and evaluation. For limited resource settings with relatively strong health systems, organised population-based mammography screening programmes are suggested for women aged 50-69 years, every 2 years only if the conditions for implementing a screening programme are met. Further, recommendations are against screening for women outside of this age range as the method might not be the most cost-effective policy available with limited resources (WHO, 2015^[45]). LAC-7 countries can be positioned in between these two recommendations, and this is noticeable in the main guidelines described by every country (Table 5.3). Most countries follow the target age recommended by WHO, though Chile has a slightly narrower age range and Mexico and Costa Rica have a slightly wider age range. The method (mammography) and periodicity (every two years) follow WHO recommendations. Most of LAC-7 countries have a population-based approach for their screening programmes. Mexico moved in this direction between 2015 and 2019, while Brazil is implementing several programmes towards incentivising population-based screenings (OECD, 2021^[3]; PAHO/WHO, 2015^[33]).

Table 5.3. Target age, periodicity and method for breast cancer screening

Guidelines for breast cancer screening in LAC-7

	Target population (females)	Periodicity	Method
Mexico	40+ with risk factors / 50 to 74 without risk factors	Every 2 years	Mammography
Colombia	50 to 69 years old	Every 2 years	Mammography Other tests included in mandatory coverage scheme
Chile	50 to 64 years old	Every 2 years	Mammography
Brazil	50 to 69 years old	Every 2 years	Mammography
Costa Rica	45 to 70 years old	Every 2 years	Mammography
Argentina	50 to 69 years old	Every 2 years	Mammography
Peru	50 to 69 years old	Every 2 years	Mammography

Source: Mexico: Secretaria de Salud (2017^[46]); Colombia: Instituto Nacional de Cancerolo (2012^[26]); Chile: Subsecretaria de Salud Pública (2013^[27]); Brazil: OECD (2021^[3]); Costa Rica: Ministry of Health (2014^[47]); Argentina: Blanco et al. (2019^[48]); Peru: Ministerio de Salud Peru (2012^[23]).

Regarding cervical cancer, WHO has recently updated recommendations regarding type of screening test (World Health Organization, 2021^[49]) and most LAC-7 countries still need to adapt. The method for cervical cancer screening in all but Argentina follow old recommendations, with countries mostly using cytology (commonly known as a “Pap smear”) exams every 3 years (Table 5.4). A shorter periodicity is observed in the guidelines of Mexico and Peru (yearly). The new guidelines recommend using a HPV DNA based test, rather than visual inspection with acetic acid or cytology, for women over 30 years old every 5 to 10 years. The reasons for the change in guidelines relate to HPV-DNA testing detecting the high-risk strains of HPV that cause most cervical cancers. Together with HPV-DNA testing being an objective test where there is no space for interpretation and the fact HPV DNA testing is simpler to apply and has higher prevention rate, it results in a better cost-effectiveness ratio (World Health Organization, 2021^[49]).

Table 5.4. Target age and periodicity of cervical cancer screening in LAC-7

Guidelines for cervical cancer screening in LAC-7

	Target population (Females)	Periodicity	Method
Mexico	25 to 69 years old	Yearly	Cytology
Colombia	21 to 69 years old	Every 3 years 5 years intervals	Cytology HPV test
Chile	25 to 64 years old	Every 3 years	Cytology
Brazil	25 to 64 years old	Every 3 years	Cytology
Costa Rica	20 years old +	Every 2 years	Cytology
Argentina	30 to 64 years old	Every 3 years	HPV test
Peru	30 to 49 years old	Yearly	Cytology

Source: Mexico: Secretaria de Salud (2017_[46]); Colombia: Instituto Nacional de Cancerología (2012_[26]); Chile: Subsecretaria de Salud Pública (2013_[27]); Brazil: OECD (2021_[3]); Costa Rica: Santamaría-Ulloa et al. (2021_[50]); Argentina: Instituto Nacional del Cáncer (2008_[51]); Peru: Ministerio de Salud Peru (2012_[23]).

Recommendations for diabetes mellitus screening differ considerable between countries and health authorities. The World Health Organization considers countries different capacities to provide ad-hoc recommendations. There are several considerations to take into account when creating a diabetes screening plan and alternatives for testing strategies are given accordingly. Considerations might be epidemiological, concerning health system capacities, economic, ethical, and political and of competing priorities. The alternatives include questionnaires, urine glucose, blood glucose, Glycated haemoglobin or a combination of tests (Pippitt, Li and Gurgle, 2016_[52]). In the United States, the U.S. Preventive Services Task recommends screening for abnormal blood glucose and type two diabetes in adults 35 to 70 years who are overweight or obese every three years (US Preventive Services Task Force, 2021_[5]), or anyone that has high risk factors. Peru takes the same approach, shortening the age range to 40 to 70 years old (Ministerio de Salud, 2016_[53]). Costa Rica takes a similar approach: Adults (18 years old or older) with any of a specified set of risk factors, prediabetes or woman with dimethylglycine will be screened every year. In the absence of these criteria, screening in Costa Rica should be made every three years starting from 45 years old (Caja Costarricense de Seguro Social, 2020_[54]).

Argentina (Instituto Nacional de Estadística y Censos - I.N.D.E.C, 2019_[55]) and Colombia (Sistema General de Seguridad Social en Salud, 2016_[56]) take a two steps approach. First a questionnaire is used to evaluate the risk of having diabetes, and if the risk is larger than the threshold they perform a fingertip prick test (plasma glucose level) or schedule a blood test. Their guidelines recommend the FINDRISC questionnaire (Rodríguez et al., 2019_[57]) applied to adults (18 year or order), with a threshold of 12 points.

Chile applies the fasting blood glucose test to 15 years old and older as part of their comprehensive plan according to life cycle. In Brazil, diabetes screening is recommended for asymptomatic individuals aged 45 years or over. In individuals under 45 years of age, diabetes screening should occur in overweight individuals with additional risk factors. Similarly, screenings for cardiovascular disease are based on age, family history and risk factors such as body mass index (OECD, 2021_[3]).

Diabetes screening in Mexico is not found to be very effective, situation that resonates with the high burden of diabetes in the country and with the first cause of death in the country (Comité Consultivo Nacional de Normalización de Prevención y Control de Enfermedades, 2009_[58]). In 2021, almost 17% of the population aged 20 years and over has diabetes, well above the global prevalence of around 10% (World Bank, 2021_[59]). In theory, diabetes and prediabetes in Mexico should be screened every three years starting at age 20 onwards, and earlier if the patient presents risk factors. The screening consists in capillary glucose testing with an automatised glucose test (Comité Consultivo Nacional de Normalización de Prevención y Control de Enfermedades, 2009_[58]). It is recommended that the screening is done together with hypertension, as it represents an important risk factor for the disease.

WHO recommendations about hypertension screening are going through a reform due to the latest evidence from Europe, moving away from population-based screening (Christian Ulrich Eriksen et al., 2021^[60]). It is highlighted that policy makers should not discount the potential value of case-finding – which involves assessing patients who may be at risk of cardio-vascular disease when they use the health care system. In this sense, having robust opportunistic screening guidelines and protocol are essentials. The early detection programme for diabetes and hypertension in Mexico follows the Global Hearts Initiative by WHO and the Centre for Disease Control of the United States (Secretaría de Salud, 2013^[21]), which is based on questionnaires to assess risk factors and blood pressure testing in population over 20 years old. Peru uses a similar approach (Ministerio de Salud, 2011^[61]). Hypertension control and screening in Argentina doesn't function in a national population-based campaign, and relies on locally driven campaigns with limited scope. The main campaign in the country is associated with the May Measurement Month, implemented yearly since 2017. The campaign consists of measuring blood pressure to all the population together with a questionnaire and recommendations for abnormal results. On 2019, it covered 94 523 individuals (Salazar et al., 2021^[62]). Chile applies risk factor measures and blood pressure measurement to 15 years old and older (Box 5.1). Costa Rica guidelines indicate to measure blood pressure to any 20-year-old or older who consulted in any health centre, or received visit from a family health team at home or at work (Caja Costarricense de Seguro Social, 2002^[63]). Colombia follows a similar approach for people aged 35 years or older, or people that present any risk factors (Sistema General de Seguridad Social en Salud, 2017^[64]).

With regards to antenatal care, LAC-7 countries have a well developed approach, which is the result of sustained commitment to reduce infant and maternal mortality. Timely, skilled, and regular antenatal care is the primary mechanism for prevention and early detection of maternal and foetus complications during pregnancy, thus reducing the burden of maternal, neonatal, and infant mortality. (WHO, 2016^[65]) LAC-7 countries approach to antenatal screening is population-based, as it is administered by protocol to all pregnant woman, and mostly occurs starting from the first visit of a health professional (Mexico Ministry of Health, 2013^[14]; Ministerio de Desarrollo y Familia, 2022^[28]; Ministry of Health, 2013^[66]). A good example for the range of services provided during antenatal care is described for Chile in (Box 5.1)

LAC-7 countries need to increase coverage of breast and cervical cancer screening among target populations

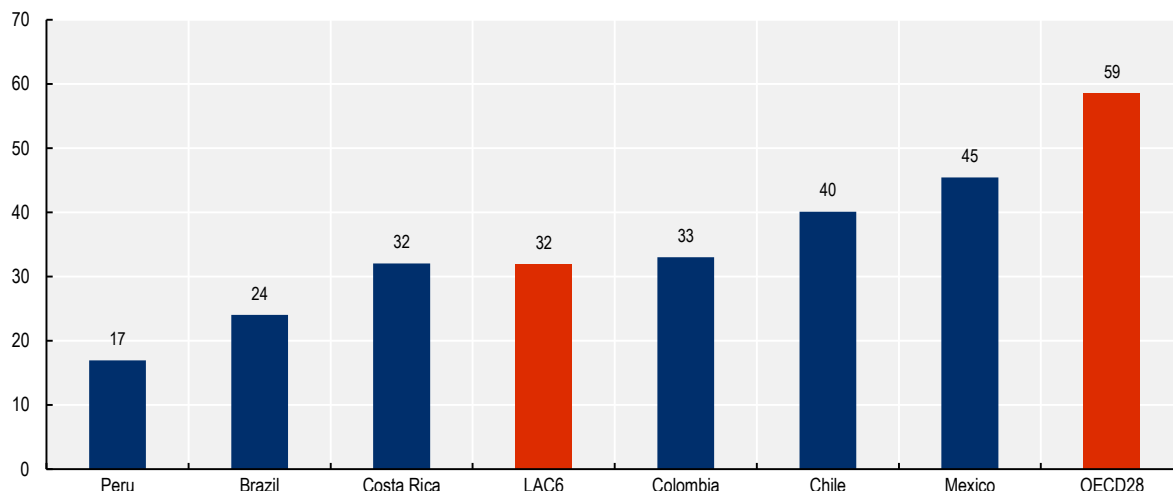
Breast cancer screening in most LAC-7 countries has not reached the levels set out in the countries screening programmes. However, important improvements have been made in the last decade (OECD, 2021^[3]; PAHO/WHO, 2015^[33]). In 2019, Brazil had the lower coverage rate for breast cancer screening among the LAC-5 countries with comparable administrative data, covering 24% of all females aged 50 to 69 years old (Figure 5.3). However, the national health survey of 2019, a self-reported survey of 108 525 households, shows that 58% of women self-reported participation to breast cancer screening in Brazil (IBGE, 2019^[67]). Mexico and Chile present the highest breast screening coverage rates in the region, at 45.4% and 40.1% respectively (Figure 5.3). These coverage rates are still well below the average across other OECD countries (59%).

In Mexico, breast screening coverage increased by 20 percentage points since 2015, suggesting the success of moving from opportunistic screening programmes toward population-based screening programme between 2015 and 2019 (PAHO/WHO, 2015^[33]; OECD, 2021^[3]). Important challenges remain in Mexico, including a limited capacity to manage care pathway effectively and problem in access to treatment (Ángeles-Llerenas et al., 2016^[68]; Ortega–Olvera et al., 2016^[69]).

Data for Argentina is available from the national survey for risk factors (Instituto Nacional de Estadística y Censos - I.N.D.E.C, 2019^[55]). Results show that among 30 000 self-reporting households, 66% of the surveyed females aged 50 to 70 in 2018 reported to have a mammography in the last two years. This is above the average among LAC-6 and other OECD countries, although cross country comparisons is limited due to different methodology.

Figure 5.3. Breast cancer screening coverage, 2019

Percentage females aged 50-69, screened in previous two years



Note: Data for Colombia is from 2017. Peru is calculated over females aged 40 to 59-year-old.

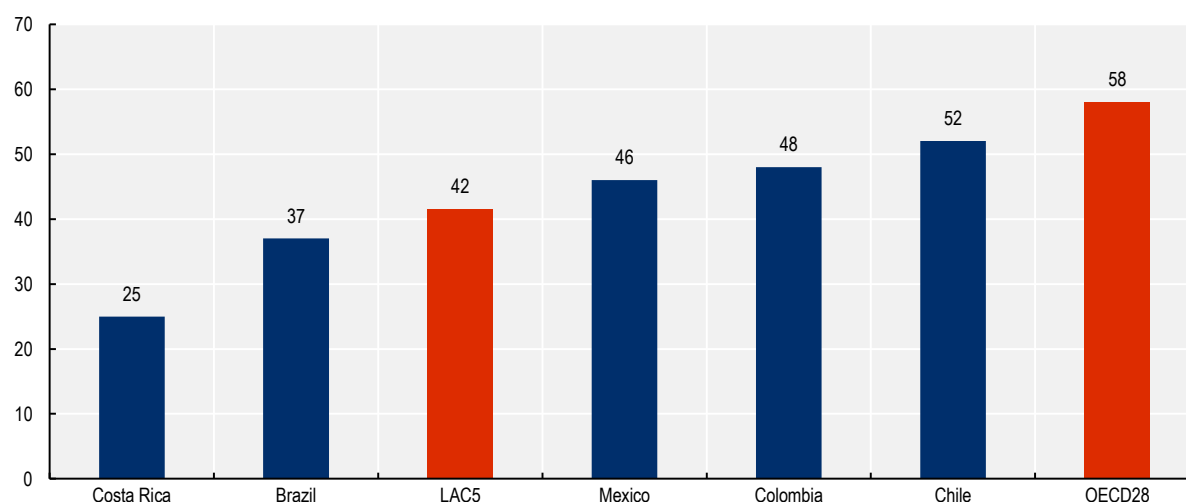
Source: Costa Rica and Brazil from OECD (2021^[3]), *Primary Health Care in Brazil*; Mexico, Chile and OECD from OECD.stat; Colombia from INC (2019^[70]); Peru from Hernández-Vásquez and Chacón-Torrico (2019^[71]), <https://doi.org/10.5867/medwave.2019.09.7701>.

Among the five countries present in Figure 5.4, cervical cancer screening has better coverage rates when compared to breast cancer screening coverage. The reasons can be multiple, but some evidence shows a positive association between cervical cancer screening rates and use of family planning and contraceptive methods (Martínez-Donate et al., 2013^[72]). Higher coverage rate can also be explained by the simplicity to carry-out cervical cancer screening collection method that generally occurs at the primary health care level. Among females aged 20-69, 58% was screened in the previous three years on average across other OECD countries (Figure 5.4). The cervical cancer screening coverage rate among LAC-5 countries is 42%, well below the average across OECD countries. Among the countries with comparable data, Chile reports the highest coverage rate (at 52% of the target population), while Costa Rica has the lowest coverage rates in the graph (at 25% of the target population).

Peru uses a different definition, limiting cross country comparisons (coverage rates are calculated among females aged 30 to 49 screened in the previous five years). Using this definition, the cervical screening coverage rate of Peru was 70% in 2019 (WHO, 2020^[73]). However, according to the WHO Global Health Observatory (WHO, 2019^[11]), Peru's coverage rate (as defined by the country's national programme) ranged between 10% and 50% in 2019, while in Colombia the same coverage rate (as defined by the country's national programme) ranged between 50% and 70% the same year. As with breast cancer coverage rates, the national risk factor survey in Argentina (Instituto Nacional de Estadística y Censos - I.N.D.E.C, 2019^[55]) indicates that 70.3% of surveyed women aged 20 to 65 self-reported to have participated to cervical cancer screening either with cytology or HPV test in the last three years. In the same line, the national health survey in Brazil indicated that 81.3% of women reported to have participated to cervical cancer screening (IBGE, 2019^[67]). However, this information is not comparable with administrative data.

Figure 5.4. Cervical cancer screening coverage, 2019

Percentage females aged 20-69 screened in previous three years



Note: Data for Colombia is from 2017 and considers females 25-69 years old. Peru is not included because of important differences in the calculation method.

Source: Costa Rica and Brazil from OECD (2021^[3]), *Primary Health Care in Brazil*; Mexico, Chile and OECD from OECD.stat; Colombia from INC (2019^[70]);

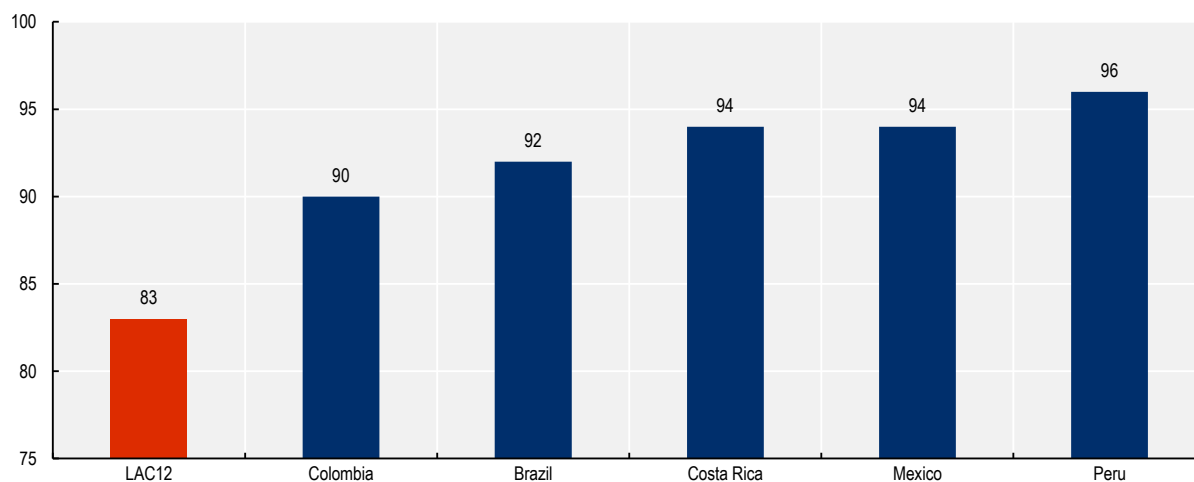
Screening and early diagnose of disease are key elements of effective antenatal and childcare (Tunçalp et al., 2017^[74]). Having the minimal recommended doctor consultations during pregnancy is a good indicator for assessing the quality of antenatal care. Figure 5.5 shows that all 5 countries included in the graph have high coverage rates (over 90%) of at least four antenatal care consultations for pregnant women aged 15 to 49.

In Chile, the programme in place for antenatal and child screening and early detection (“Chile crece contigo”) (Table 5.1) covers around 75 to 80% of all born children in the country (Damian Clarke, Gustavo Cortés Méndez and Diego Vergara Sepúlveda, 2018^[75]). Available evidence shows a slight improvement in coverage of pregnant women receiving care from a qualified professional, from 97% in 2015 to 98% in 2020 (ENDES-ENEI, 2020^[76]). This is most likely linked to an increased number of consultations performed by obstetricians and nurses (ENDES-ENEI, 2020^[76]).

Looking at coverage rates disaggregated by socio-economic characteristics provide evidence of inequalities in antenatal care in most LAC countries. Coverage rates varied widely across income quintiles in Colombia, with a difference of 15 percentage points between the poorest people (coverage rates at 81%) and the richest people (with a coverage rate at 96%) in 2015. Similar disparities have been found in Peru, Costa Rica, Argentina and Brazil (ICF, 2018^[77]).

Figure 5.5. Antenatal consultations (2015-20)

Percentage of women aged 15-49 attended by any provider at least four times during pregnancy



Note: The graph uses latest data available in 2015-20 range. Latest data from ARG in 2011 (excluded). No data was found for CHL. COL uses data from 2015-2016, BRA from 2019, CRI from 2018, MEX from 2015, PER from 2019.

Source: UNICEF (2021^[78]), Global databases of antenatal care, based on MICS, DHS and other nationally representative household survey data. Available at <https://data.unicef.org/>.

There is scope to improve diabetes and hypertension screening rates in LAC-7 countries

Diabetes and hypertension are routinely checked in LAC-7 countries, and embedded in PHC practice. However, while data for screening coverage rates is rather limited, available evidence shows that there is scope for improvement in all countries.

In Mexico, the low diabetes and hypertension screening rates is contrasted with the high prevalence of these diseases in the Mexican population. Based on survey data of 1 500 respondents over 18 years old in 2013, 72% of the respondents were screened for hypertension and serum cholesterol in the last year, and 61% answered that they had a preventive check-up in the last two years (Guanais and et al., 2018^[79]). However, these levels of coverage differ from the population level statistics that the national health and nutrition survey shows, where in 2018 screening coverage for diabetes (12.9%), hypertension (12.9%) and serum cholesterol (10%) were far from the national goals (Shamah Levy, Rivera-Dommarco and Bertozzi, 2020^[80]). Evidence suggest that women, people aged over 50, higher socio-economic status, having a health insurance, obesity and suffering from other comorbidities (like cardiovascular diseases) and family history of diabetes or hypertension are associated with higher use of diabetes and hypertension screening (Villalobos et al., 2020^[81]). Further, the 2018 national health and nutrition survey found that 4.6% and 14.8% of the Mexican adult population had undiagnosed diabetes and hypertension, respectively (Shamah Levy, Rivera-Dommarco and Bertozzi, 2020^[80]).

In Colombia, 60% of the respondents had a hypertension screening, 54% had serum cholesterol check in the previous year and 69% had a preventive health visit in the last two years (Guanais and et al., 2018^[79]).

Brazil shows a lower performance with 58% of people reported they had been screened for hypertension, 80% for serum cholesterol and 42% reported they had a preventive check-up (Guanais and et al., 2018^[79]).

In Argentina, a 2018 survey of around 30 000 households shows that 71.1% of the respondents over 18 years old had been tested for diabetes at least once in their lives. Similarly, 84.3% of respondents over 18 years old was checked for hypertension in the last two years and 82% of males over 35 and females over 45 had a serum cholesterol check. The same survey shows that 31.6% of the population

aged between 50 and 75 had at least one colon cancer test in their lives (Instituto Nacional de Estadística y Censos - I.N.D.E.C, 2019^[55]). In Peru, a study shows that 34.1% of a sample of low income population never had had a blood pressure assessment; 65.2% never had a serum cholesterol assessment; and 75.6% never had a diabetes screening (Flores-Flores et al., 2018^[32]). These data clearly suggest that screening for hypertension and diabetes can be further strengthened at the PHC level, with a greater focus on disadvantaged population.

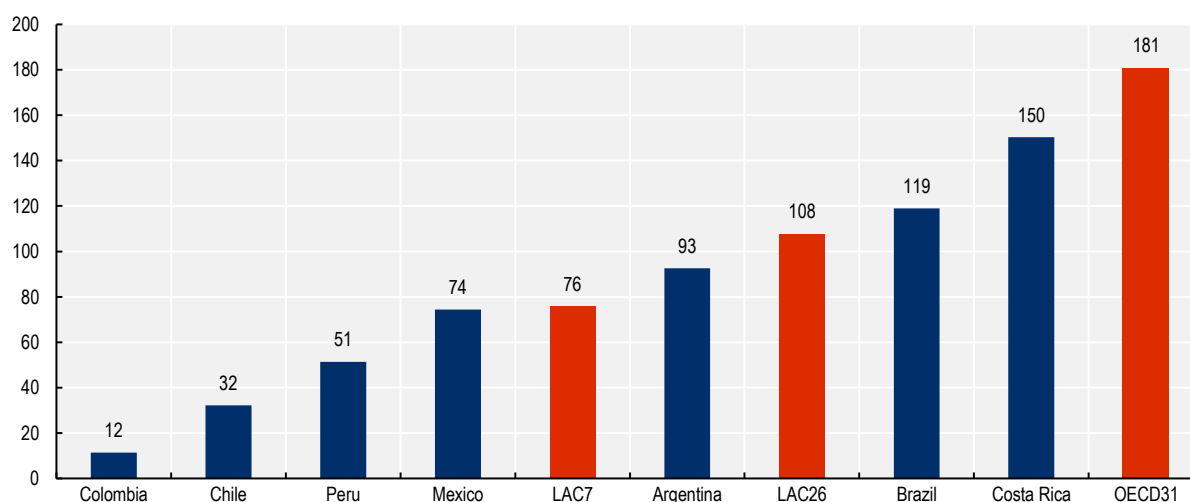
Important under-provision of structural capacities undermines the implementation of screening and early detection programmes

The success of screening and early detection programmes has several determining factors. As a start, the structural capacities of the country need to be sufficient to support the screening and early detection efforts of PHC. In fact, the lack of medical technology or human resources is an active restriction for the programme's successful implementation. In LAC-7 countries, the lack of availability of medical technologies is a major problem limiting early detection of diseases and contributing to late diagnosis.

All LAC-7 countries define mammography as the main method for breast cancer screening (Table 5.3). However, mammography units per million females aged 50-69 are considerably lower than across other OECD countries. Costa Rica is close to the OECD average, having 150 mammography units per million females aged 50-69. At the lower end of the scale, Colombia and Chile have respectively 12 and 32 units per million females aged 50-69, well below the LAC-7 average of 76 mammography units (Figure 5.6).

Figure 5.6. Mammography units, latest available year

Units per million females aged 50-69



1. Peru presents two sources with different numbers of mammogram units. The alternative is given by the general directorate for strategic intervention in public health, Peru Ministerio de Salud (2017^[24]), presenting a rate of 44.14 units per million females (50-59).

Source: LAC26: WHO (2019^[1]), The Global Health Observatory; Health at a Glance: Latin America and the Caribbean 2020 (via OECD Health Statistics 2019); Chile, Colombia, Costa Rica, Mexico and OECD: OECD (2022^[36]). For Argentina and Peru, data for number of mammograms comes from Limardo et al. (2018^[82]) (Data from 2010) and (Ramos Muñoz and Guerrero Ramírez (2021^[83]) (Data from 2017). Target population extracted from United Nations and Department of Economic and Social Affairs - Population Division (2019^[84]) World Population Prospects data. Brazil uses data from 2010 (Nogueira et al., 2019^[85]).

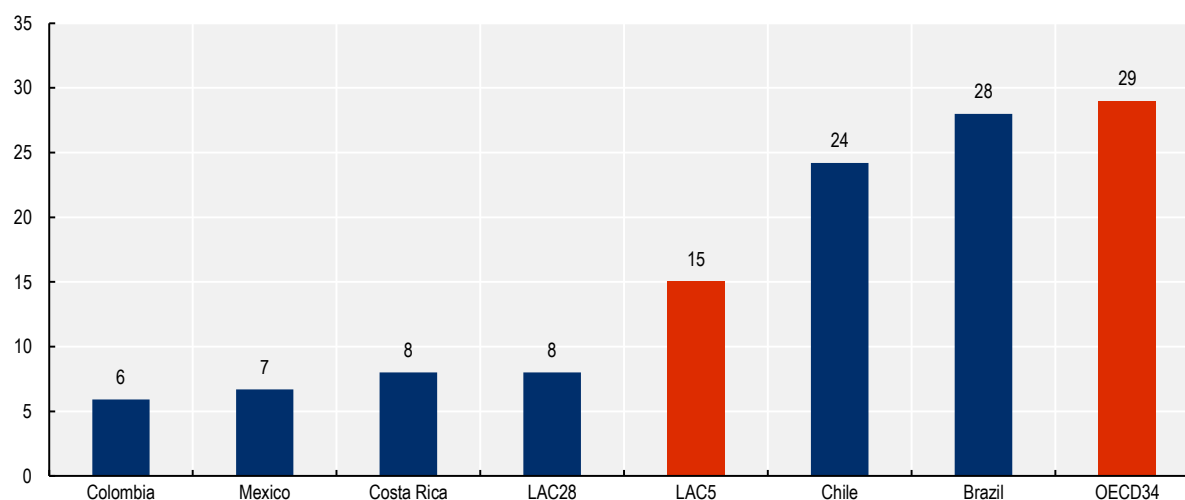
The under-provision of mammography units is not the only challenge for breast cancer screening in the LAC region. Quality check-ups and qualified personnel are two other key elements. Argentina has a national mammography quality plan for accreditation and quality assurance of mammography services that supervises the quality of mammograms and the competencies of the workforce to ensure the units are usable. While quality governance is warranted, studies have shown a lack of proper quality control and human resource to operate the equipment at full capacity (Viniestra M, Paolino M and Arrossi S, 2010^[86]). Similarly, in Mexico the lack of consistency in national cancer control plans, fuelled by the system fragmentation, creates discrepancies regarding infrastructure and training of personnel (Lopez et al., 2017^[87]).

Care continuity after positive screening is also an area of concern. Even though care pathways are described in national guidelines, deficiencies in effective capacity and the lack of systems for accountability results in important delays to start treatment. Previous evidence shows that treatment in Argentina can start up to 150 days after screening, eliminating the advantages of an early detection (Viniestra M, Paolino M and Arrossi S, 2010^[86]). Similarly, overall waiting times between diagnosis and initiation of treatment for all cancers in Colombia have been decreasing, yet remain above the reference time used as a benchmark, which is four weeks. Paradoxically, breast, cervical and prostate cancers have the longest waiting times amongst all cancers (Fondo Colombiano de Enfermedades de Alto Costo, 2021^[88]). In Mexico, suboptimal knowledge on screening guidelines among medical students or residents and low awareness of current cancer screening standards among Mexican PHC physicians adversely impact the effective implementation of screening programmes (Ortega-Olvera et al., 2016^[69]). Limited training in guidelines and care standards partly explain why screening targets are not reached as expected in all LAC-7, causing delays in diagnosis and treatment and shortening survival rates (Ángeles-Llerenas et al., 2016^[68]).

The availability of Computed Tomography scanners per million population in LAC-7 countries is also significantly lower than across other OECD countries. Brazil reports the highest availability among the LAC-7 countries with 28 units per million population, similar to the OECD average of 29 units per million population. At the lower end of the scale, Colombia and Mexico report both 6 and 7 units per million population, almost 80% lower than the OECD average (Figure 5.7).

Figure 5.7. Computed tomography scanners, latest available year

Units per million population



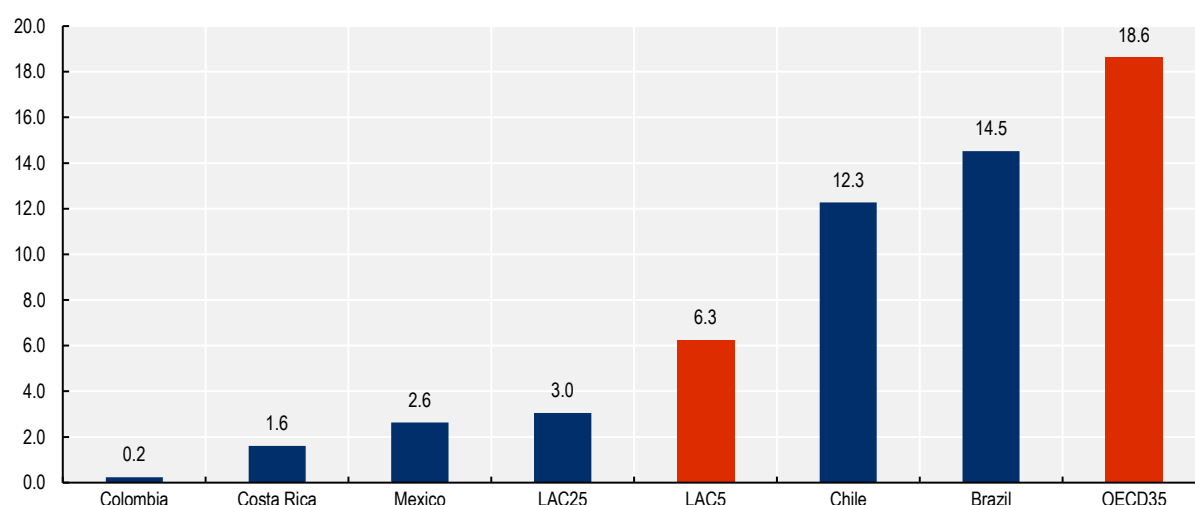
Note: Colombia and Mexico data from 2020, CHL data from 2017, CR data from 2013, BRA data from 2021. Due to the fragmentation of health system in Brazil, a sizeable fraction of these CTs are in private hospitals and unavailable for SUS users.

Source: OECD (2022^[36]), OECD Health Statistics 2022 for Mexico, Brazil, Chile, Colombia and OECD34. Others from WHO (2019^[11]), The Global Health Observatory. Costa Rica from OECD/The World Bank (2020^[89]), *Health at a Glance: Latin America and the Caribbean 2020*.

Magnetic resonance imaging (MRI) is a cost effective tool for supporting the early diagnosis of several diseases, including cancer (Giganti and Moore, 2019^[90]) and others diseases such as Alzheimer (Teipel et al., 2013^[91]) and rheumatoid arthritis (Tehranezhadeh, Ashikyan and Dascalos, 2003^[92]). Appropriate availability of MRI will secure early detection of disease, while under-provision will directly affect the country's ability to promptly detect several diseases. LAC-5 countries (at 6.3 units per million population) show significantly lower supply of MRI units than across other OECD countries (average of 19 per million population). Among LAC-7 countries, Brazil reports the highest number (at 14.5 units per million population) while Colombia reports the lowest number of MRI (at 0.2 units per million population).

Figure 5.8. Magnetic resonance imaging (MRI), latest available year

Units per million population



Note: Data for Colombia, 2018; Costa Rica, 2013; Mexico, 2020; Brazil, 2021; Chile, 2017.

Source: OECD (2022^[36]), OECD Health Statistics 2022 for Mexico, Brazil, Chile and Colombia. Others from WHO (2019^[11]), The Global Health Observatory. Costa Rica from OECD/The World Bank (2020^[89]), *Health at a Glance: Latin America and the Caribbean 2020*.

Screening and early detection of COVID-19

The availability of COVID-19 testing in primary health care setting was limited at the start of the pandemic

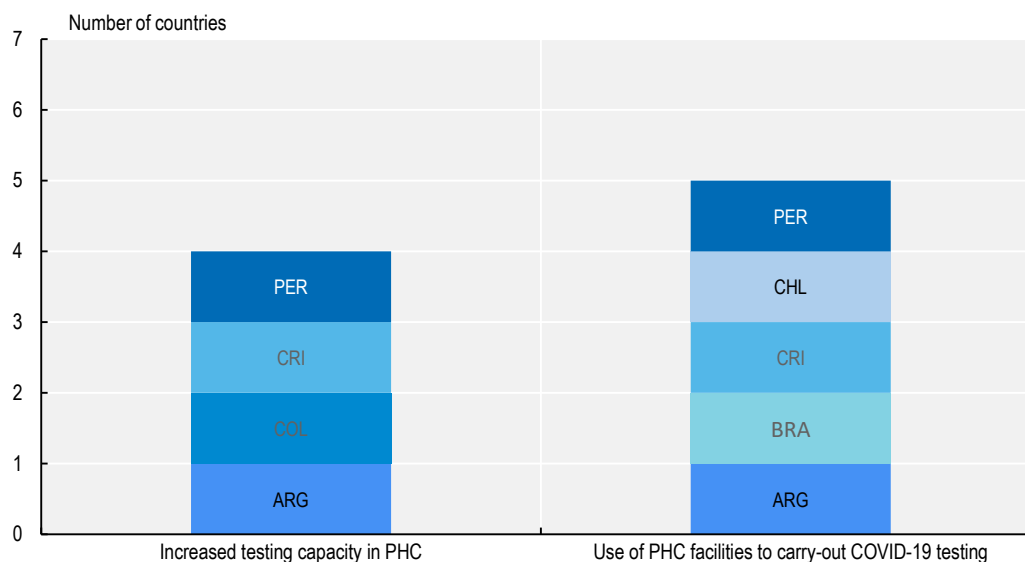
During health emergencies, primary health care teams can play a pivotal role to carry out early and precise case detection in the community they operate – through passive or proactive testing – which is key to minimise virus circulation. However, as earlier mentioned in Chapter 3, health care systems in LAC-7 countries not only have lower capacity than the OECD average in terms of health expenditures and number of health professionals but also in terms of testing capacity. The 2021 OECD policy survey suggests that the availability of COVID-19 testing was rather limited at the start of the pandemic. Some countries relied on foreign supply chain to achieve testing kits. Brazil and Mexico for example relied on 135 000 testing kits received from China (OECD, 2020^[93]). Other LAC-7 countries (Argentina, Costa Rica, Colombia and Peru) also developed specific strategies to expand national capacity (Figure 5.9).

- In Argentina, some provinces and municipalities build their testing strategies by increasing the availability of Antigen testing to be performed by primary health care workers. Argentina also

developed its own testing kits with government-financed research from top national universities along with technology companies producing up to 100 000 testing kits per month (OECD, 2020^[93]).

- In Costa Rica, as there were not enough tests and laboratories in the CCSS service network to cover the high demand for COVID-19 testing, several measures were introduced to increase testing capacity. These included the regionalisation of molecular testing, the creation of six new laboratories to carry-out RT-PCR testing, and acquisition of materials (such as swabs and reagents). From September 2020 Costa Rica also relied on antigen testing to increase the testing capacity in primary health care setting. Together, these strategies helped to triple the number of tests carried out in 2021 as compared to 2020.
- Colombia expanded its testing capacity in a period of five months after the start of the pandemic, reaching a total of 43 529 tests daily, out of which 13 248 were carried out by public laboratory, 28 281 by private laboratory and 2000 by the INS. To increase capacity there have been efforts to ensure different public and private laboratories allocate resources, acquire materials and carry out infrastructure investments (INS, 2020^[94]). As of January 2021, the country had 162 authorised laboratories for the diagnosis of COVID-19 through the use of RT-PCR testing (Ministry of Health, 2021^[95]).
- In Peru, only the INS laboratory was able to perform PCR testing, resulting in large diagnosis delays. Over the course of 2020 and 2021, more than 110 molecular biology laboratories processing PCR samples for COVID-19 diagnosis were developed in the public and private sectors. All regions have now molecular testing, allowing to expand access to testing and reduce diagnosis delays for a more timely and effective responses. More than half of these laboratories are managed by public institutions which perform the tests free of charge. This has been communicated on the INS website and through a massive media campaign.

Figure 5.9. LAC-7 countries leveraged PHC to carry-out COVID-19 detection in the community



Source: OECD (2021^[96]), Policy Survey on the role of primary health care during the COVID-19 pandemic.

Guidelines and protocols on diagnostic testing for primary health care workers is also a key element to increase the effectiveness of primary health care response. Guidelines from National public authorities provides recommendations for the implementation of analytical tests for detecting COVID-19 and infection prevention measures, with evidence-based information on technical specification, procedures, materials

or safety protocols (see good practice in Germany and New Zealand in Box 5.5). Guidelines help primary health care professionals to carry-out accurate and safe diagnosis to control the spread of the pandemic. In some LAC-7 countries, Ministry of Health made general recommendations for COVID-19 diagnosis, but sometimes at a late stage, requiring some local or subnational actions. In Brazil, while training videos were available in 2020 through YouTube, guidelines for primary health care workers on COVID-19 diagnosis was published in March 2021, almost one year after the start of the pandemic (Ministério da Saúde, 2021^[97]). In Chile, guidelines from the Ministry of Health were established in June 2020 (Ministry of Health, 2020^[98]), three months after the first case in the country. The primary health care network in each municipalities had to implement their own testing strategy before the national recommendations, leading to a great variability of the response across municipalities. In Argentina, the Ministry of Health published general recommendations on performing diagnostic tests, which were then developed by each primary health care facilities. In Colombia, Costa Rica and Peru, national guidelines were also published by the Ministry of Health but they did not specifically target primary health care workers (unlike other OECD countries such as New Zealand, see Box 5.5).

To improve response during health emergencies, there is a need for stronger stewardship from the central level to take key decisions and issue evidence-based guidelines. Involving stakeholders such as health workers, public health experts and the civil society, is a core element in developing evidence-based guidelines.

Box 5.5. COVID-19 testing strategies and guidelines developed in some OECD countries

In Germany, robust public health networks including expert scientific institutions (e.g. Robert Koch Institute) formed a strong foundation for the early responses. Germany was one of the first countries to establish COVID-19 testing methods already on 16 January 2020 together with accompanying technical guidelines for testing. As a result, the country quickly scaled up to cover the escalating demand (1.1 Million tests per week at the end of 2020) with a high fraction of the capacity from decentralised private laboratories equipped with capacities of expertise and instruments to conduct RT-PCR diagnostics.

In Luxembourg, a proactive large-scale testing was launched in the primary and community settings from 18 May 2021 for the entire population and cross border workers. The overarching objective was to identify asymptomatic individuals in order to break the chain of transmission and reduce the spread of the virus. A modelling work shows that the total number of COVID-19 cases would have been 43% higher without the large-scale testing programme.

In New Zealand, the Ministry of Health publishes specific guidelines on COVID-19 for primary health care workers. The Primary Care Quick Reference Guide is a summary of information for community health care providers involved in assessing and managing undifferentiated respiratory illness and queries regarding COVID-19 risk and need for testing (including in general practice or community pharmacy). These guidelines are evidence-based, and regularly updated by the Ministry of Health.

Source: OECD Project on the Resilience of Health Systems Questionnaire, 2022, and Ministry of Health of New Zealand, <https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-information-health-professionals/covid-19-primary-care>.

Leveraging primary health care to carry-out COVID-19 testing

According to the 2021 OECD policy survey, COVID-19 testing has been carried-out to some extent in primary health care settings. All LAC-7 countries developed some forms of COVID-19 testing in primary health care settings, but with some level of heterogeneity within and across countries. In some provinces of Argentina, community health workers have played a leading role in detecting cases of COVID-19.

Itinerant testing operations were also carried out by health workers from the PHC network (*“Centros de atención primaria”*). At national level, the DETECTAR Programme, launched by the MOH and implemented in co-ordination with the provinces in disadvantaged neighbourhoods or in defined areas, relied on the network of primary health care. As mentioned in Chapter 4, the DETECTAR programme is based on door to door visits to carry-out COVID-19 testing, but also health monitoring. The primary health care team is composed of between 15 and 45 people, including social workers, nurses, health promoters and doctors. The DETECTAR programme involved a mobile health facility, situated in the defined areas, to carry-out COVID-19 testing. The programme has been progressively extended to several areas and provinces, including the greater Buenos Aires area, in urban areas of Buenos Aires, in the Provinces of Chaco, Entre Rios, La Rioja, Santa Cruz and Santa Fe (PAHO, 2020^[99]). The programme is now available to all jurisdiction. The DETECTAR programme is a best practice example of good co-ordination between national government and community level. All positive cases are reported daily through the MOH’s National Epidemiological Surveillance System (SNVS). The core element of success for the SNVS was the training of health workers, the increase in IT equipment and the economic incentives defined as part of the Sumar Programme (Chapter 4).

In Chile, after confirmation of the first case of COVID-19, testing, tracking and tracing (TTT) was responsibility of the regional administration. However, with insufficient capabilities, traceability was lost rapidly and in June 2020 TTT was assigned to PHC. The primary health care network in each municipalities started to implement the testing strategy by July 2020. Nevertheless, the funding for testing activities was late and insufficient to support primary health care to carry out the strategy successfully. It is only from 2021 that primary health care had a bigger role in COVID-19 testing, with positive results (Facultad de Medicina Universidad de Chile, 2021^[100]). An important success factor of the testing strategy was the use of mobile testing and mobile labs. The Centinela strategy, developed in the Renca municipality (Box 5.6. *The Centinela strategy in the Renca municipality (Chile)*), has been a very good local initiative to start reporting and monitoring the COVID-19 pandemic.

In Costa Rica, all EBAIS were responsible for the detection, notification and investigation of cases, which in turn notify the Local Epidemiological Surveillance Commission (COLOVE) of its Health Area. Primary health care also implemented sampling campaigns in places with an epidemiological outbreak, and screened for COVID-19 at vulnerable sites or disadvantaged populations. COLOVE provides the necessary support to consolidate data of all the EBAIS to carry-out epidemiological surveillance, case studies and implement specific health actions. The registration of COVID-19 cases is carried out through the Digital Health Record (EDUS), which links the health centres network of the CCSS (see Chapter 4). All COVID-19 laboratory results, regardless of the place or technique with which they are processed, are available in real time. Results are also available in the digital file of patients.

In Mexico, the Ministry of Health prioritised hospital care to deal with COVID-19. Primary health care only had the responsibilities to identify patients suspected to have COVID-19 to direct them in respiratory triage areas for laboratory tests (see Chapter 5). In Peru, during the second semester of 2021, the National Institute of Health implemented 924 COVID-19 testing points, many of these being located in primary care facilities and undertaken by health care workers specifically hired for this purpose. In addition, mandatory notification of COVID-19 cases was established in all IPRESS (Health Service Provider Institutions), whether public or private. This contributed to the improvement in the registry of the follow-up and evaluation of suspected, confirmed patients and deaths from COVID-19. The Ministry of Health developed a national surveillance system of COVID-19, with the Integrated System for COVID-19 (SISCOVID). In Brazil, Community References Centres were responsible for screening suspected COVID-19 cases and testing high risk patient groups, and provided greater assistance resolution to people with mild symptoms related to COVID-19. These centres acted as the first point of contact in PHC regarding patients with mild symptoms, and made it possible to maintain care continuity for other health care services (Chapter 6). The focus group of Community References Centres were underprivileged communities, and favelas. Around 130 centres were established and BRL 8.2 million (~EUR 1.3 million) spent each month (OECD, 2021^[3]).

Box 5.6. The *Centinela* strategy in the Renca municipality (Chile)

In April 2020, it became clear that the means available to follow up the cases and contacts of COVID-19 in Renca municipality (Chile's Metropolitan region) would be insufficient due to the exponential increase of infections. A municipal team created a centralised health information system called *Centinela* to optimise information management and co-ordination of health teams for COVID-19 TTT. The strategy allowed to 1) identify positive cases, 2) develop contact studies, 3) geo-reference cases, 4) manage food delivery to affected families, 5) plan an active screening strategy of COVID-19 cases in the community 6) manage patient care and refer them to the secondary level if needed, 7) interoperate with the national system Epivigila and the sample collection national website, and 8) elaborate and disseminate periodic reports of pandemic progress for timely decision making.

The efficient co-ordination of resources and staff allowed to anticipate the measures implemented two months after by the health authority to prevent the spread of infection. It allowed to be proactive to detect early COVID-19 in the community, carrying out field operations and maintaining permanent communication and dissemination of information on prevention of infection. The strategy also helps to address some medical and social needs such as the need for medicine and food home delivery for the elderly and helping to address delayed care for some chronic patients.

Source: OECD (2021^[96]), Policy Survey on the role of primary health care during the COVID-19 pandemic.

Responsibilities for COVID-19 testing have also been carried-out by PHC across other OECD countries included in Italy's Veneto Region (Box 5.7). In Austria also, multi-disciplinary PHC teams were tasked with the triage and registration of suspected COVID-19 cases and to organise COVID-19 testing (Pichler, Frühwald and Burgmann, 2020^[101]). Overall, new responsibilities and new form of co-ordination between national level and local level should be maintained to manage both short and long term challenge.

Box 5.7. Italy's Veneto region relied on team-based primary health care for COVID-19 testing

From the start of the pandemic, the Veneto Region in Italy adopted a territorial response to the COVID-19 pandemic. In the decentralised health care system, the organisation of health care services and the response to COVID-19 greatly varies across regions. Some regions had a very hospital centric response (as in Lombardy), while other had a much greater focus on community and primary health care settings (as in Emilia Romagna or Veneto). The Veneto Regions for example implemented an "out of hospital model" model of management, with swabs test performed in the community. The overarching objective was to perform tests to all patients, included those with mild symptoms, and to all contact patients. The strategy helped to diagnose early COVID-19, to guide quarantine and treat as much as possible in the community before health deterioration and reduce hospital admission. Overall, the Veneto regions was characterised by a lower hospitalisation rate and a higher incidence of testing in the community.

Source: Mugnai and Bilato (2020^[102]) and Mauro and Giancotti (2021^[103]).

Important disruptions of screening and early detection services occurred during the COVID-19 pandemic

The efforts made to deal with COVID-19 pandemic had a profound effect in the normal functioning of LAC health systems. On the one hand, health care system resources, infrastructure and workforce shifted their attention to provide care to COVID-19 patients, mainly in hospital settings. On the other hand, people minimised their routine visits to health care professionals fearing getting infected in the process (WHO, 2022^[104]). The result has been a worldwide disruption of health care services, where countries have reported disruptions across services (WHO, 2022^[104]). Early detection services in LAC-7 countries have been severely affected, with important reduction in the coverage of screenings and early detections occurring during routine care. Postponed screenings will have a direct effect on population health in the long term, as patients with diseases that normally would have been detected early will have considerably worst prognosis and poorer health conditions (Vrdoljak et al., 2021^[105]). Maintaining essential health services during health crises, including routine screening, is a critical attribute of resilient health systems. Yet, many LAC-7 countries, as many other OECD countries, were not resilient enough to minimise delays and disruptions in early detection of diseases.

Disruption of screening and early detection services in LAC countries has been large

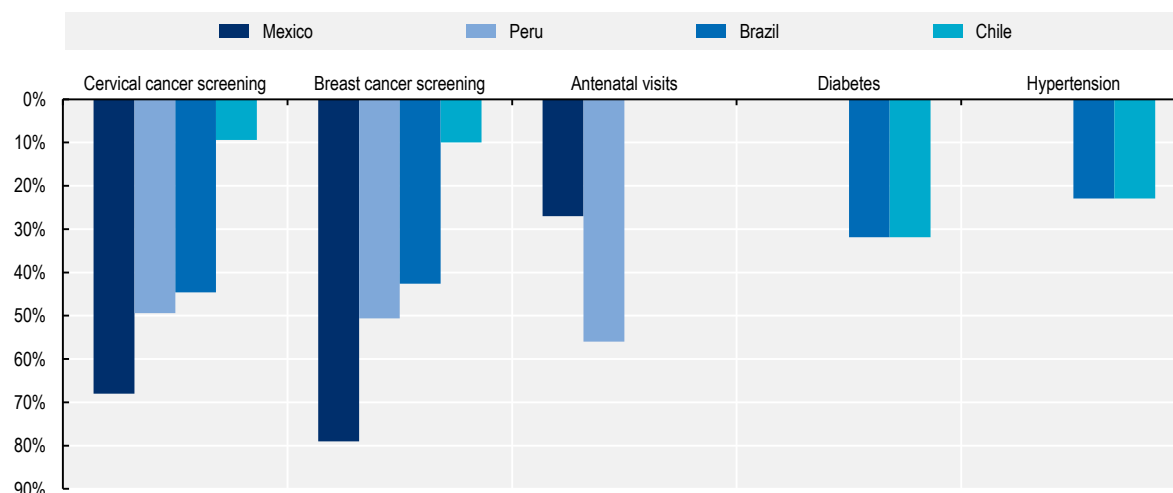
Among the LAC-7 countries, growing evidence suggests that COVID-19 has dramatically impacted cancer screening or early detection of diseases (Figure 5.10). In Mexico, from April to December 2020, breast cancer screening dropped by 79%, cervical cancer screening declined by 68%, and antenatal care visits decreased by 27% compared to the previous year (Dobova et al., 2021^[106]). In addition, INSABI reported a drop of 68.5% in out-patient consultations to people without social security between 2019 and 2020, a reduction which continued in 2021 (Vitela, 2022^[107]). At the same time, available evidence shows that antenatal care visits decreased by 37.2% in 2020 (Alejandra Llanos-Guerrero and Judith S. Méndez Méndez, 2021^[108]).

In Chile, for the population aged 20 to 64 years old enrolled in the public insurance scheme, screening coverage rates dropped from 16.5% to 3.6% between 2019 and 2020 (which represents a 78% reduction) and reached 2.4% in 2021 (which represents a 85% reduction). A similar situation occurred for population aged 64 and over, where it decreased from 47.9% in 2019 to 10.8% in 2020 and 10.5% in 2021 (DEIS - Ministerio de Salud Chile, 2022^[109]). Similarly, cervical cancer screening for females aged 20-69 screened in the past three years dropped from 52% in 2019 to 47.1% in 2020 (which represents a 9.4% decrease) (OECD, 2022^[36]). Breast cancer screening saw a drop from 40.1% in 2019 to 36.3% in 2020, representing a 10% decrease in the coverage of females 50-69 screened in the past two years. Early detection for people with diabetes, measured with normal Hb tests, dropped from 29.5% in 2019 to 20.1% in 2020 and 12.2% in 2021. Early detection for people with hypertension, measured with tests of normal blood pressure levels decreased from 48.5% in 2019, to 37.4% in 2020 and 18.6% in 2021 (DEIS - Ministerio de Salud Chile, 2022^[109]).

In addition, the problem of access to routine care during the pandemic in Chile has been captured by the national monitoring system created for managing COVID-19. In 2021, only 71.3% of respondents declared being able to access a medical check-up, compared to 93.7% before the pandemic, an issue more prevalent among publicly insured population (Ismael Puga R et al., 2021^[110]). Further, access to general care was drastically affected in diseases such as cancer, heart attacks, or strokes (Pacheco et al., 2021^[111]). Childcare was also affected, in part because the authority limited the age of children who could attend routine care in PHC due to the pandemic efforts. A drop of 67% in the number of children with PHC consultations was observed from 2019 to 2020 (Ministry of Health, 2020^[112]).

Figure 5.10. Screening dropped in most LAC-7 countries

Estimated reduction in coverage rates of screening in 2020 compared to 2019



Note: For Brazil, information relates to decrease in the number of tests. Countries had differences in calculation of coverage rates, and are thus not directly comparable. Data was not available for the rest of LAC-7.

Source: Mexico: Doubova et al. (2021^[106]); Chile: DEIS - Ministerio de Salud Chile (2022^[109]) and OECD (2022^[36]); Peru: BPT, GOPBM –MINSa (2021^[113]) and Maternal Health - Roundtable for Concertation and Fight against Poverty (2021^[114]), Brazil: Ribeiro, Correa and Migowski (2022^[115]).

In Peru, the disruption of early detection services for cancer is of particular concern, as already before the pandemic evidence shows that the country had a large percentage of cancers diagnosed at advanced stages (Astigueta-Pérez et al., 2020^[116]). The deficiencies are rooted in the fragmentation of the system and the dependence of the programme on the yearly budget assigned by different institutions. Because the pandemic absorbed most of the budget, the programmes reduced the target in terms of population coverage and diminished the proactive actions towards population screening. In 2021, 146 498 persons were screened for cervical cancer, against 256 967 in 2019. Because of the changes in target population, the coverage percentages are not comparable in time or against other countries. However, they do provide an approximation towards the disruption in the active search for patients. In 2019 the coverage was 81%, dropping to 41% in 2020 and partially recovering in 2021 (59%) (BPT, GOPBM –MINSa, 2021^[113]). At the same time, according to the minister of health, pap smear tests decreased in 2020 (528 840) and 2021 (974 410) compared with 2019 (1 418 894) (62% and 31% reduction respectively). For breast cancer, screenings were made to 83% of the target population in 2019, dropping to 41% in 2020 and recovering to 66% in 2021. For colorectal cancer, in 2021 the first semester goal was 80 567 people screened, but only 10 565 (13.1%) were actually screened. In 2020 the coverage was 23.4% (66 653 screened people) (BPT, GOPBM –MINSa, 2021^[113]).

Pregnant woman had difficulties to access routine care in Peru, where 35.5% of the pregnant woman who died in 2020 had no antenatal check-up, while 67.3% had between one and five check-up (Maternal Health - Roundtable for Concertation and Fight against Poverty, 2021^[114]). There were 9 367 197 early childcare and development controls made in 2019, most of them by the primary care facilities; this number decreased by 56% in 2020 (4 122 275) and recovered to 60% of the initial level in 2021 (5 620 087) (MINSa, 2022^[117]). In addition, the Ministry of Health reports a 62% decrease in hypertension screenings between 2019 and 2020, but with a positive recovery in 2021.

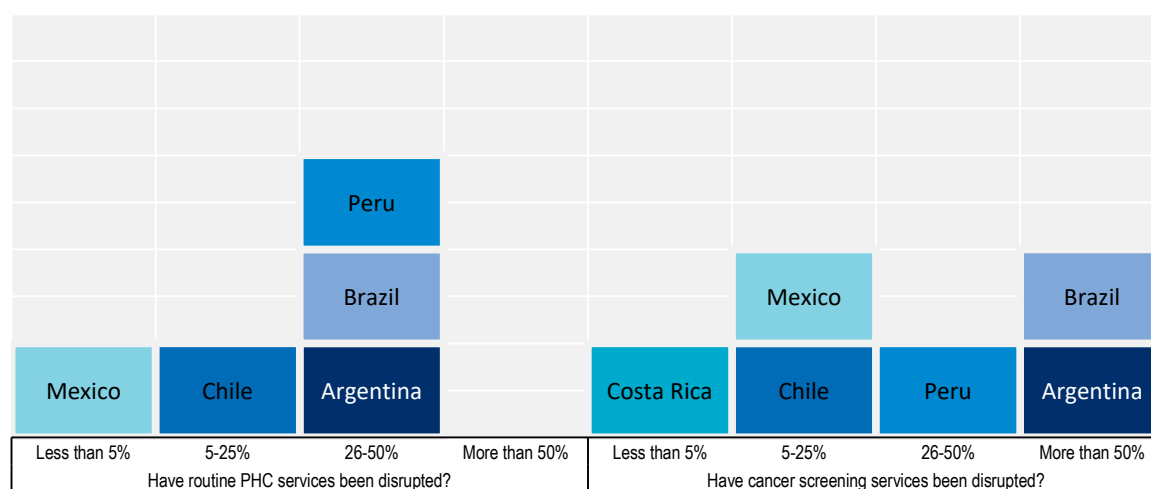
According to the WHO Pulse survey (WHO, 2022^[118]), 50% of cancer screening services were disrupted in Argentina in 2021 and in Brazil in 2020 (until March 2021), while only 5% was disrupted in Costa Rica

(Figure 5.11). During 2021, ordinance GM/MS n° 3 712 in Brazil allocated BRL 150 million (~23, EUR 5 million) from the central government to the states and Federal District to secure the continuity of screening and early diagnosis actions for breast and cervical cancer during the COVID-19 pandemic (Ministro de Estado da Saúde, 2020^[119]). In addition, the Brazilian National Cancer institute published a technical note in March 2020 explaining what early detection actions could be postponed, followed by a note in June of the same year with guidance on the conditions and requirement to resume screening services. By 2021, given the growing concern of the oncologic morbidity and mortality, priority was given to assist health care centres to resume early detection of cancer (Migowski and Corrêa, 2020^[120]).

Other OECD countries have seen large drop in cervical, breast and colorectal cancer screenings between 2019 and 2020 (Box 5.8).

Figure 5.11. Disruption of services during 2021

Proportion of disrupted services. LAC-7 country responses. Services related to screening



Note: Data for Argentina, Chile and Peru collected in December 2021. Data for Brazil and Costa Rica collected in March 2021. Cancer screening disruption for Mexico collected in March 2021, routine PHC disruption collected in December 2021.

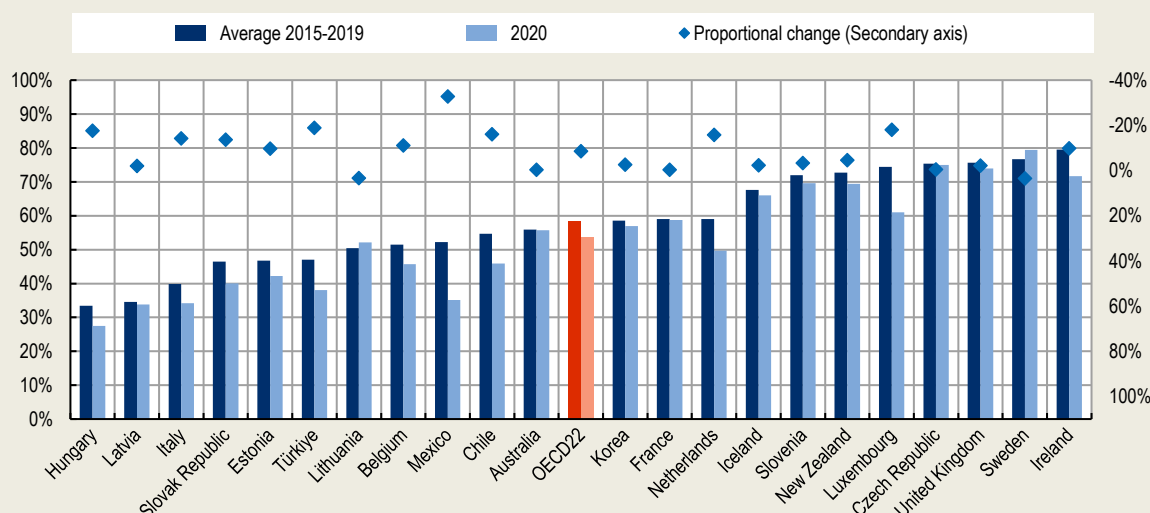
Source: WHO (2022^[118]), Pulse survey on continuity of essential health services during the COVID-19 pandemic, https://www.who.int/publications/i/item/WHO-2019-nCoV-EHS_continuity-survey-2022.1.

Box 5.8. COVID-19 impacted screening coverage across the globe

For OECD countries with available and comparable data, cervical cancer screening coverage in 2020 decreased on average by 4.1 percentage points (9% average decrease) when compared to the average situation of the previous five years (2015-19)(Figure 5.12). Further, between 2019 and 2020 rates for breast cancer screening dropped on average by 5.2 percentage points (or by 11%) across the countries with available data, with large disruption in Mexico, the Republic of Türkiye and Latvia. In the same period, colorectal cancer screening dropped by 3.5 percentage points (or by 9%) on average.

Figure 5.12. Disruption of cervical cancer screening during the COVID-19 pandemic

Percentage of females aged 50-69. OECD countries with available data



1. Proportional change uses secondary axis on the right. 2. Luxembourg, United Kingdom and Ireland present provisional values for 2020. Slovak Republic, Estonia, Republic of Türkiye, France, Iceland, Lithuania, Slovenia, Netherlands, Australia, Sweden and Ireland present differences in methodology.

Source: OECD (2022^[36]), OECD Health Statistics 2022.

Conclusions

As the first and main point of contact with the health care system, primary health care is best placed to detect disease at the early stage. However, the technical capacities for this purpose in LAC-7 countries are lower than in other OECD countries, especially in terms of the availability of medical technologies including mammography units, CT scanners and MRI. National recommendations for screening follow the World Health Organization guidelines in terms of the population-based approach, the testing methods for screening, and periodicity. However, in all LAC-7 countries there is scope to expand the coverage of screening for breast and cervical cancer, and for hypertension and diabetes. Key elements of successful PHC programme include explicit implementation details, alongside clear responsibilities, appropriate trainings and accountability system. In Chile for example, PHC centres are responsible for implementing preventive tests according to life cycle, including mammography at the PHC centre or in co-ordination with another provider. One key success factor for the Chilean programme is to hold PHC centres accountable for the screening process. In Peru, antenatal consultations, which can occur entirely in PHC, fully benefit from the new community-based care plan that includes explicit roles and responsibilities of PHC workers for the active identification and invitation of target population. Centralised and integrated information systems will be critical to help assess the effectiveness of the programme and assess practices at provider level.

During the COVID-19 pandemic, the availability of COVID-19 testing was rather limited, and recommendations from the Ministry of Health for primary health care workers to carry-out COVID-19 testing were most often late (as in Brazil, Chile or Argentina). To improve preparedness and response during health emergencies, there is a need for stronger stewardship from the central level to take key decisions

and issue evidence-based guidelines. All LAC-7 countries developed some forms of COVID-19 testing in primary health care settings, but with high heterogeneity within and across LAC-7 countries. In Costa Rica for example, all EBAIS were responsible for COVID-19 testing, while in Mexico the role of primary health care in COVID-19 testing was rather limited. The variations that can be seen within the regions reflect differences in PHC systems across LAC countries. New responsibilities and new forms of co-ordination between national level and local level (as in Argentina with the Detectar programme) should be maintained to manage both short and long term health challenges.

As in other OECD countries, early detection of diseases was suspended during the first phase of the pandemic to increase capacity for patients with COVID-19 complications. The result is that early detection of non-COVID-19 disease was postponed, with large impact on cancer screening, detection of hypertension and of diabetes (as in Argentina, Brazil, Chile, Mexico and Peru). LAC-7 countries should urgently acknowledge the generated backlog of services and create plans accordingly, so that health and economic effects are minimised.

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From:

Primary Health Care for Resilient Health Systems in Latin America

Access the complete publication at:

<https://doi.org/10.1787/743e6228-en>

Please cite this chapter as:

OECD (2023), "Screening and early detection of diseases", in *Primary Health Care for Resilient Health Systems in Latin America*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/6536de2b-en>

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