Silvia Gatti

LONG LIFE TO THE WOMEN. THE REORGANIZATION OF EARLY DETECTION OF BREAST CANCER IN BOLOGNA (2010-2016)

FrancoAngeli

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Introduction

1. The Context

The events and analyses presented in this book are all internal to the Italian National Health Service. This introduction aims to highlight the origins of this important form of human health protection, starting from the conception in 1942 and the creation in 1948 of the British National Health Service and from the draft law establishing the Italian National Health Service in 1977 which then leads to Law 833 of 23 December 1978 establishing the Italian National Health Service, up to the definition of the Essential Levels of Care (LEA) in 2001 and the establishment of the Permanent Committee for the verification of the provision of the Essential Levels of Care in 2005. Finally, the role of prevention, and secondary prevention in particular, the subject of the case discussed in the book, within the National Health Services will be highlighted.

2. The Beveridge Report of 1942 and the Establishment of the British National Health Service in 1948[1]

In Italy, the establishment of the National Health Service took place, as has already been written, with Law 833 of 23 December 1978, but at a European level, an important experience of the National Health Service had already existed in the United Kingdom since 1948.

The need to create a National Health Service was strongly underlined in the United Kingdom in the Beveridge Report of 1942. The British National

1. This section dedicated to William Beveridge draws ideas and reflections from the participation in the "LSE Festival: Beveridge 2.0 – Rethinking Beveridge for the 21st Century" at the London School of Economics in February 2018.

Health Service was then created with the Labour government of Clement Attlee in 1948. It was conceived and created, however, compared to the Italian experience of thirty years later, in a broad context of social reform through a rethinking of the existing (at the beginning of the 1940s in Britain) national social insurance schemes and allied services.

> On the 10th June, 1941, the Minister without Portfolio (the Rt. Hon. Arthur Greenwood, M.P.) announced in the House of Commons that he had arranged with all the Departments concerned for a comprehensive survey of existing schemes of social insurance and allied services which would be considered in due course by the Committee on Reconstruction Problems of which he was chairman; and that Sir William Beveridge had accepted his invitation to become Chairman of an interdepartmental Committee which would conduct the survey, taking into account representations received from responsible organisations and persons concerned with the problems involved (Beveridge, 1942, p. 2).

The Beveridge Report was therefore born

> to undertake, with special reference to the inter-relation of the schemes, a survey of the existing national schemes of social insurance and allied services, including workmen's compensation, and to make Recommendations (Beveridge, 1942, p. 2).

The Report, for which William Beveridge is solely responsible, represents an extremely fragmented situation of social insurance schemes and allied services in the United Kingdom in the early 1940s, which nevertheless covered vast areas of social protection and which, as Beveridge himself underlines

> that provision for most of the many varieties of need […] has already been made in Britain on a scale not surpassed and hardly rivalled in any other country of the world (Beveridge, 1942, p. 5).

> Apart from the Poor Law, which dates from the time of Elizabeth, the schemes surveyed are the product of the last 45 years beginning with the Workmen's Compensation Act, 1897 [employers were required to cover medical costs of injuries on the job]. That Act, applying in the first instance to a limited number of occupations, was made general in 1906. Compulsory health insurance began in 1912. Unemployment insurance began for a few industries in 1912 and was made general in 1920. The first Pensions Act, giving non-contributory pensions subject to a means test at the age of 70, was passed in 1908. In 1925 came the Act which started contributory pensions for old age, for widows and for orphans. Unemployment insurance, after a troubled history, was

> put on a fresh basis by the Unemployment Act of 1934, which set up at the same time a new national service of Unemployment Assistance. Meantime, the local machinery for relief of destitution, after having been exhaustively examined by the Royal Commission of 1905-1909, has been changed both by the new treatment of unemployment and in many other ways, including a transfer of the responsibilities of the Boards of Guardians to Local Authorities. Separate provision for special types of disability – such as blindness – has been made from time to time. Together with this growth of social insurance and impinging on it at many points have gone developments of medical treatment, particularly in hospitals and other institutions; developments of services devoted to the welfare of children, in school and before it; and a vast growth of voluntary provision for death and other contingencies, made by persons of the insured classes through Industrial Life Offices, Friendly Societies and Trade Unions (Beveridge, 1942, p. 5).

Thus the system of social protection even before the Beveridge Report of 1942 included:

1. compensation by employers for injuries on the job;
2. compulsory health insurance;
3. unemployment insurance;
4. contributory pensions for old age, for widows and for orphans:
5. separate provision for special types of disability;
6. medical treatment, particularly in hospitals and other institutions, impinging on social insurance at many points;
7. services devoted to the welfare of children, in school and before it;
8. voluntary provision for death and other contingencies.

Even before the Beveridge Report of 1942 there was a large welfare system in the United Kingdom that was mostly linked to people's work activity. But Beveridge points out:

> social insurance and the allied services, as they exist today, are conducted by a complex of disconnected administrative organs, proceeding on different principles, doing invaluable service but at a cost in money and trouble and anomalous treatment of identical problems for which there is no gustification (Beveridge, 1942, p. 6).

Finally Beveridge underlines:

> In one respect only of the first importance, namely limitation of medical service, both in the range of treatment which is provided as of right and in respect

of the classes of persons for whom it is provided, does Britain's achievement fall seriously short of what has been accomplished elsewhere: it falls short also in its provision for cash benefit for maternity and funerals and through the defects of its system for workmen's compensation (Beveridge, 1942, p. 6).

Beveridge then highlights a limitation in medical services and the classes for which they are provided.

2.1. The Beveridge Report Recommendations and the Emerging Shape of the British National Health Service

Beveridge highlights three principles that must lead from the comprehensive social security survey to the formulation of recommendations. Here we want to underline the first two principles:

> The first principle is that any proposals for the future, while they should use to the full the experience gathered in the past, should not be restricted by consideration of sectional interests established in the obtaining of that experience. Now, when the war is abolishing landmarks of every kind, is the opportunity for using experience in a clear field. A revolutionary moment in the world's history is a time for revolutions, not for patching (Beveridge, 1942, p. 6).

> The second principle is that organisation of social insurance should be treated as one part only of a comprehensive policy of social progress. Social insurance fully developed may provide income security; it is an attack upon Want. But Want is one only of five giants on the road of reconstruction and in some ways the easiest to attack. The others are Disease, Ignorance, Squalor and Idleness (Beveridge, 1942, p. 6).

Beveridge is aware that the key to the exit from the Want lies in the redistribution of income:

> But this does not affect the main conclusion to be drawn from these surveys: abolition of want requires a double re-distribution of income, through social insurance and by family needs (Beveridge, 1942, p. 7).

> Abolition of want requires, second, adjustment of incomes, in periods of earning as well as in interruption of earning, to family needs, that is to say, in one form or another it requires allowances for children. Without such allowances as part of benefit or added to it, to make provision for large families, no social insurance against interruption of earnings can be adequate. But, if children's allowances are given only when earnings are interrupted and are not given

during earning also, two evils are unavoidable. First, a substantial measure of acute want will remain among the lower paid workers as the accompaniment of large families. Second, in all such cases, income will be greater during unemployment or other interruptions of work than during work (Beveridge, 1942, pp. 7-8).

By a double re-distribution of income through social insurance and children's allowances, want, as defined in the social surveys, could have been abolished in Britain before the present war (Beveridge, 1942, p. 8).

2.2. The Role of Reproduction Rate, Child Care and Maternity Protection in the Plan for Social Security in Britain

The low reproduction rate of the British community today […] makes it imperative to give first place in social expenditure to the care of childhood and to the safeguarding of maternity (Beveridge, 1942, p. 8).

Here Beveridge touches on a very sensitive issue which was much debated precisely because of the effects that different family allowance schemes would have had on the redistribution of income and on births in the different social classes.

2.3. The Role of the Establishment of Comprehensive Health and Rehabilitation Services in the Proposed Plan for Social Security in Britain

The Social Security scheme that Beveridge presents is structured as follows:

The main provisions of the plan may be summarised as follows:

(i) The plan covers all citizens without upper income limit, but has regard to their different ways of life; it is a plan all-embracing in scope of persons and of needs, but is classified in application.

(ii) In relation to social security the population falls into four main classes of working age and two others below and above working age respectively, as follows:
   I. Employees, that is, persons whose normal occupation is employment under contract of service.
   II. Others gainfully occupied, including employers, traders and independent workers of all kinds.

III. Housewives, that is married women of working age.
IV. Others of working age not gainfully occupied.
V. Below working age.
VI. Retired above working age.

(iii) The sixth of these classes will receive retirement pensions and the fifth will be covered by children's allowances, which will be paid from the National Exchequer in respect of all children when the responsible parent is in receipt of insurance benefit or pension, and in respect of all children except one in other cases. The four other classes will be insured for security appropriate to their circumstances. All classes will be covered for comprehensive medical treatment and rehabilitation and for funeral expenses.

(iv) Every person in Class I, II or IV will pay a single security contribution by a stamp on a single insurance document each week or combination of weeks. In Class I the employer also will contribute, affixing the insurance stamp and deducting the employee's share from wages or salary. The contribution will differ from one class to another, according to the benefits provided, and will be higher for men than for women, so as to secure benefits for Class III.

(v) Subject to simple contribution conditions, every person in Class I will receive benefit for unemployment and disability, pension on retirement, medical treatment and funeral expenses. Persons in Class II will receive all these except unemployment benefit and disability benefit during the first 13 weeks of disability. Persons in Class IV will receive all these except unemployment and disability benefit. As a substitute for unemployment benefit, training benefit will be available to persons in all classes other than Class I, to assist them to find new livelihoods if their present ones fail. Maternity grant, provision for widowhood and separation and qualification for retirement pensions will be secured to all persons in Class III by virtue of their husbands' contributions; in addition to maternity grant, housewives who take paid work will receive maternity benefit for thirteen weeks to enable them to give up working before and after childbirth.

(vi) Unemployment benefit, disability benefit, basic retirement pension after a transition period, and training benefit will be at the same rate, irrespective of previous earnings. This rate will provide by itself the income necessary for subsistence in all normal cases. There will be a joint rate for a man and wife who is not gainfully occupied. Where there is no wife or she is gainfully occupied, there will be a lower single rate; where there is no wife but a dependant above the age for children's allowance, there will be a dependant allowance. Maternity benefit for housewives who work also for gain will be at a higher rate than the single rate in unemployment or disability, while their unemployment and disability benefit will be at a lower rate; there are special rates also for widowhood as described below.

With these exceptions all rates of benefit will be the same for men and for women. Disability due to industrial accident or disease will be treated like all other disability for the first thirteen weeks; if disability continues thereafter, disability benefit at a flat rate will be replaced by an industrial pension related to the earnings of the individual subject to a minimum and a maximum.

(vii) Unemployment benefit will continue at the same rate without means test so long as unemployment lasts, but will normally be subject to a condition of attendance at a work or training centre after a certain period. Disability benefit will continue at the same rate without means test, so long as disability lasts or till it is replaced by industrial pension, subject to acceptance of suitable medical treatment or vocational training.

(viii) Pensions (other than industrial) will be paid only on retirement from work. They may be claimed at any time after the minimum age of retirement, that is 65 for men and 60 for women. The rate of pension will be increased above the basic rate if retirement is postponed. Contributory pensions as of right will be raised to the full basic rate gradually during a transition period of twenty years, in which adequate pensions according to needs will be paid to all persons requiring them. The position of existing pensioners will be safeguarded.

(ix) While permanent pensions will no longer be granted to widows of working age without dependent children, there will be for all widows a temporary benefit at a higher rate than unemployment or disability benefit, followed by training benefit where necessary. For widows with the care of dependent children there will be guardian benefit, in addition to the children's allowances, adequate for subsistence without other means. The position of existing widows on pension will be safeguarded.

(x) For the limited number of cases of need not covered by social insurance, national assistance subject to a uniform means test will be available.

(xi) Medical treatment covering all requirements will be provided for all citizens by a national health service organised under the health departments and post-medical rehabilitation treatment will be provided for all persons capable of profiting by it.

(xii) A Ministry of Social Security will be established, responsible for social insurance, national assistance and encouragement and supervision of voluntary insurance and will take over, so far as necessary for these purposes, the present work of other Government Departments and of Local Authorities in these fields (Beveridge, 1942, pp. 9-11).

Therefore for Social Security there are classes with certain and specific protections, but all classes are covered for complete medical and rehabilitation care (provision xi).

More specifically, how the National Health Service should be:

The first part of Assumption B is that a comprehensive national health service will ensure that for every citizen there is available whatever medical treatment he requires, in whatever form he requires it, domiciliary or institutional, general, specialist or consultant, and will ensure also the provision of dental, ophthalmic and surgical appliances, nursing and midwifery and rehabilitation after accidents. Whether or not payment towards the cost of the health service is included in the social insurance contribution, the service itself should

(i) be organised, not by the Ministry concerned with social insurance, but by Departments responsible for the health of the people and for positive and preventive as well as curative measures;
(ii) be provided where needed without contribution conditions in any individual case.

Restoration of a sick person to health is a duty of the State and the sick person, prior to any other consideration. The assumption made here is in accord with the definition of the objects of medical service as proposed in the Draft Interim Report of the Medical Planning Commission of the British Medical Association:

(a) to provide a system of medical service directed towards the achievement of positive health, of the prevention of disease, and the relief of sickness;
(b) to render available to every individual all necessary medical services, both general and specialist, and both domiciliary and institutional (Beveridge, 1942, p. 159).

And therefore, the Health Service is detached from work and must be provided without contributory conditions. The issues concerning the National Health Service become external to Social Insurance:

Most of the problems of organisation of such a service fall outside the scope of the Report. It is not necessary to express an opinion on such questions as free choice of doctor, group or individual practice, or the place of voluntary and public hospitals respectively in a national scheme. It is not necessary to express an opinion on the terms of service and remuneration of doctors of various kinds, of dentists and of nurses, except in so far as these terms may affect the possibility of diminishing and controlling sickness and so may affect the finances of the Social Insurance Fund. Once it is accepted that the administration of medical treatment shall be lifted out of social insurance to become part of a comprehensive health service, the questions that remain for answer in this Report are, in the main, financial. Shall any part of the cost of treatment, and if so what part, be included in the compulsory insurance contribution? But, though that question is in itself financial, the answer to it may affect the organisation of the service and may therefore depend in part upon views as to organization (Beveridge, 1942, p. 159).

The idea of financing the National Health Service through general taxation materializes shortly afterwards with the White Paper "A National Health Service" which was published in 1944 (Ministry of Health and Department of Health for Scotland, 1944).

The White Paper included the founding principles of the National Health Service: It was to be funded out of general taxation and not through national insurance. The services would be provided by the same doctors and the same hospitals, but they were provided free at the point of use and financed from central taxation. Everyone was eligible for care (even people temporarily resident or visiting the country).

While many of the principles of the 1944 white paper were reflected in the National Health Service Act 1946, the Act went further than had been anticipated in 1944. In 1945, Labour won the general election and the Minister of Health Aneurin Bevan pushed for more radical reform. He favoured nationalisation of all hospitals, whether voluntary or municipal (The Health Foundation, 2024).

2.4. The Prevention in the Beveridge Project

In the Beveridge Report, the prevention enters into the entire project of the proposed Plan for Social Security. Beveridge's concern is to prevent accidents at work and disability in general, and in healthcare to intervene early to succeed in the cure:

> determined efforts should be made by the State to reduce the number of cases for which benefit is needed. It is a logical corollary to the receipt of high benefits in disability that the individual should recognise the duty to be well and to co-operate in all steps which may lead to diagnosis of disease in early stages when it can be prevented. Disease and accidents must be paid for in any case, in lessened power of production and in idleness, if not directly by insurance benefits. One of the reasons why it is preferable to pay for disease and accident openly and directly in the form of insurance benefits, rather than indirectly, is that this emphasises the cost and should give a stimulus to prevention (Beveridge, 1942, p. 158).

3. The Origins of the Italian National Health Service

The Italian National Health Service project was born thirty years after the Beveridge Report and the creation of the British National Health Service and was born outside of an organic welfare project. The reasons can be traced back

to an undoubtedly different historical context, but also to the fact that in Italy no one has ever really thought of designing a complete welfare state system.

The five giants Want, Disease, Ignorance, Squalor, Idleness to be fought in the Beveridge Report, which can be traced back to policies against Poverty, for Health, for Education, for Housing and against Unemployment, in Italy have had a single and in some fields partial development (Poverty, Unemployment and Housing), in others, following the constitutional provisions, of great commitment by the State (Health and Education). All the fields have undergone sudden changes in policies conditioned by the succession of the various governments.

The Beveridge Report is based on the fact that only a comprehensive Plan against the five giants can be effective. It would be important to evaluate whether an organic welfare policy in Italy would lead to greater efficiency of policies, including health care. Without prejudice to the important role that Regional Health Services have with the action of Social and Health Care for community welfare.

3.1. The Draft Law for the Establishment of the National Health Service That Led to Law 833 of 23 December 1978

On 16 March 1977, the draft law proposed by the Government for the establishment of the National Health Service was presented to the Chamber of Deputies, which would lead to the enactment of Law 833 on 23 December 1978.

The draft law intends first of all to demonstrate the desire to correspond to the broadest possible extent to the indications of the Constitutional Charter regarding the protection and safeguarding of health:

> In attuazione dell'articolo 32 della Costituzione: («La Repubblica tutela la salute come fondamentale diritto dell'individuo e interesse della collettività, e garantisce cure gratuite agli indigenti. Nessuno può essere obbligato a un determinato trattamento sanitario se non per disposizione di legge. La legge non può in nessun caso violare i limiti imposti dal rispetto della persona umana»), il disegno di legge propone come obiettivi:
>
> I. la tutela "globale" della salute, fondata sulla prevenzione delle cause di insorgenza delle malattie e sulla predisposizione di strutture adeguate per interventi sia a livello individuale che collettivo;
> II. un impiego programmato delle risorse reali dello Stato e degli enti locali, tale da assicurare, anche nel settore sanitario, una crescita dei livelli di libertà, di democrazia e di giustizia sociale per gli individui, per i gruppi sociali, in

particolare per quelli che dispongono di più limitati mezzi materiali, per la comunità;

III. soluzioni adeguate e moderne, non solo in armonia con le direttive comunitarie ma anche sulla scorta di esperienze internazionali, per i problemi legati alla contaminazione ambientale, specie di origine industriale, e per le insidie che possono derivare alla salute dagli alimenti (Disegno di Legge di iniziativa governativa, 1977, pp. 1-2).

But in the draft law immediately after there is a reference to the need to respond to a difficult and serious economic situation with the need to eliminate waste and duplication.

Therefore, the Government with the draft law expresses the will to apply rigorous parameters to quantify the amount of financial resources to be used for the creation of an efficient National Health Service and to verify in concrete terms, year by year, the real correspondence of these resources to the global dimension of those produced by the country.

A questo fine il disegno di legge:

- indica nel 6 per cento del prodotto nazionale lordo il limite delle risorse da utilizzare per il finanziamento del Servizio sanitario nazionale, fino alla fiscalizzazione degli oneri sociali;
- stabilisce che, a fiscalizzazione avvenuta, il finanziamento sia determinato annualmente nella legge di approvazione del bilancio di previsione dello Stato;
- attribuisce al CIPE (su proposta del Ministro della sanità, sentito il Consiglio sanitario nazionale) la competenza a deliberare la ripartizione delle somme tra le Regioni, in base a parametri numerici distintamente definiti per spesa corrente e spesa in conto capitale, parametri che abbiano come obiettivo quello di assicurare a tutta la popolazione livelli assistenziali uniformi nonché la graduale attuazione dei programmi di prevenzione (Disegno di Legge di iniziativa governativa, 1977, p. 2).

The draft law then underlines, at that time, the urgency of the revision of the health care system in force also in view of the extinction of the mutualistic bodies scheduled for 30 June 1977.

The draft law emphasizes how

le difficoltà nelle quali si dibatte il sistema mutualistico attuale, nonché le sue insufficienze, specie di fronte alla richiesta di prestazioni uniformi e a una più diffusa e più radicata coscienza del diritto alla tutela della salute, hanno ampliato il consenso per il passaggio a un nuovo sistema sanitario più consono con l'articolo 32 della Costituzione (Disegno di Legge di iniziativa governativa, 1977, p. 3).

The draft law focuses on the characteristics of the mutualistic system, underlining its critical issues:

> La crisi degli enti mutualistici è anche la crisi di un sistema di assistenza indirizzato quasi esclusivamente alla cura della malattia, che di fatto ha emarginato la prevenzione. […] È convinzione largamente diffusa che sia necessario un ribaltamento degli obiettivi, attraverso il rilancio della prevenzione e operando in direzione della salvaguardia e della tutela dello stato di benessere psico-fisico del cittadino (Disegno di Legge di iniziativa governativa, 1977, p. 3).

The fundamental principle of the draft law becomes the globality of interventions, through a close connection and coordination of prevention, treatment and rehabilitation health services, both at an operational and structural level. The peripheral structures of the National Health Service become the local health units that will have to ensure all the main interventions.

They will have to

> corrispondere, per la natura e per la composizione dei rispettivi organi di amministrazione e consultivi, alla domanda di partecipazione dei cittadini. Tale domanda affonda le sue radici nella tradizione democratica dei grandi movimenti popolari italiani (Disegno di Legge di iniziativa governativa, 1977, p. 3).

Another fundamental principle, which inspires the health reform, is the extension of health services to the entire population:

> principio che costituisce il necessario risvolto di una nuova concezione della salute intesa non soltanto come bene individuale ma, anche, come interesse della comunità (Disegno di Legge di iniziativa governativa, 1977, p. 3).

Another fundamental principle is the equalization of treatment among all those assisted.

> Tale finalità è perseguita con la unificazione dei vari livelli assistenziali. È noto infatti, che l'attuale sistema mutualistico vede determinate categorie di cittadini escluse da alcune prestazioni di assistenza generica, specialistica e farmaceutica (Disegno di Legge di iniziativa governativa, 1977, p. 3).

> L'unificazione dei livelli assistenziali […] attua più concretamente il principio costituzionale dell'uguaglianza fra i cittadini (Disegno di Legge di iniziativa governativa, 1977, p. 3).

But once again:

> I livelli standard dell'assistenza saranno fissati dal CIPE, tenuto conto delle risorse finanziarie disponibili (Disegno di Legge di iniziativa governativa, 1977, p. 3).

And equity and its maintenance in women's access to the services of early detection of breast cancer during, precisely, processes of reorganization or savings will be at the center of the works presented in this book.

3.1.1. The Role of the Prevention

One of the most significant aspects of the health reform is certainly represented by the role assigned to the prevention.

> Il superamento del sistema mutualistico esige, infatti, che non si operi più "a posteriori", ma che si tenga conto, preventivamente, della reale condizione sanitaria dell'uomo nell'ambiente di vita e di lavoro, intervenendo con la dovuta tempestività contro l'insorgere degli stati patologici e inquinanti (Disegno di Legge di iniziativa governativa, 1977, p. 4).

The draft law underlines in this field the need for uniformity of the directions to be implemented, and therefore of programming, and that such uniformity necessarily requires a priority phase to be attributed to the central structures.

> Altrimenti si potrebbero creare disparità e differenze, espressioni di specifiche, particolari realtà, senza un supporto e una programmazione unitaria, a carattere nazionale (Disegno di Legge di iniziativa governativa, 1977, p. 5).

3.1.2. Territoriality and Democratization of the Service

The National Health Service designed here tends towards a

> maggiore corrispondenza fra presidi sanitari e domanda di assistenza della popolazione ma, anche, gestione e controllo più diretti delle nuove strutture. In questo senso viene affidato un ruolo fondamentale alle Regioni e agli enti locali minori, demandando ad essi compiti di indirizzo e di gestione, così come sono previste forme di partecipazione del cittadino, sia pure a livello consultivo (Disegno di Legge di iniziativa governativa, 1977, p. 5).

In the draft law for the establishment of the National Health Service the idea of a key function of the Regions with tasks of direction and management was already clear, from 2001 with the reform of Title V of the Constitution the Regions will have legislative power in the health field.

An important component of the draft law is the idea of democratization of the Health Service. For the case studied in this book, exemplifying many other cases of reorganization of the Services in the Regional Health Services, the participation of citizens and the role of the consultative committees play a key role.

Finally, I did not find in the draft law and in the law itself establishing the National Health Service rules that proceed to verify, at that time, the correspondence at the territorial level between health facilities and the demand for assistance of the population in order to remedy the imbalances present inside the regions and between the regions themselves.

3.1.3. Services in Agreement with Private Facilities

Breaking with the past, the draft law provides that the Regions can avail themselves, only when public facilities are insufficient, of private nursing homes, provided that they are equipped in such a way as to guarantee hospital performance levels not lower than those of public hospitals.

> Le Regioni possono avvalersi facendo ricorso alla convenzione (articolo 14) dei servizi sanitari delle università, degli ospedali militari, degli istituti a carattere scientifico, degli istituti ed enti religiosi classificati come ospedali e, quando le strutture pubbliche siano insufficienti, anche di case di cura private, purché attrezzate in maniera tale da garantire livelli di prestazioni ospedaliera non inferiori a quelli degli ospedali pubblici.
>
> Il rapporto convenzionale è esteso anche alle prestazioni sanitarie in genere – ovviamente preventive, curative e riabilitative – e ciò allo scopo di rafforzare la rete assistenziale mediante i servizi di tutte le strutture che erogano in via convenzionale, l'assistenza ospedaliera. È prevista, altresì, la possibilità di convenzionamento con le aziende termali per le prestazioni sanitarie predeterminate (Disegno di Legge di iniziativa governativa, 1977, p. 15).

Today, the agreement of Regional Health Services with private structures is becoming more and more frequent and relevant, disregarding the provision of the draft law and leaving many unknowns on the present and future characteristics of the Regional Health Services in Italy.

3.2. Uniformity of Provision of Health Services at Territorial Level: the Essential Levels of Care

Upon completion of the legislative process, Law 833 of 23 December 1978 in its fundamental principles establishes that

> The national health service is made up of the complex of functions, structures, services and activities aimed at promoting, maintaining and recovering the physical and mental health of the entire population without distinction of individual or social conditions and according to methods that ensure the equality of citizens with respect to the service.

The issue of equality has been addressed in ever greater depth by the Italian National Health Service over the years and reached a crucial moment in 2001 with the constitutional referendum for the reform of Title V, which led to the redefinition of the matters falling within the exclusive and concurrent legislative power of the State and the Regions, extending the legislative power of the Regions to the field of health protection, while maintaining the exclusive competence of the State on the determination of the Essential Levels of Performance.

The Prime Ministerial Decree of 29 November 2001 (23 years after the establishment of the Italian National Health Service) therefore defines the Essential Levels of Care, i.e. the services and benefits that the National Health Service is required to provide to all citizens, free of charge or upon payment of a participation fee (ticket), with public resources collected through general taxation (taxes) and lists in the annexes the activities and benefits included in the Levels, the services excluded, the services that can be provided by the National Health Service only under particular conditions.

Law 30 December 2004, n. 311 (Financial Law 2005): paragraph 169 entrusts the Minister of Health with the task of establishing «the qualitative, structural, technological, process and possibly outcome, and quantitative standards, referred to in the essential levels of care», also in order to ensure that the methods of providing the services included in the Essential Levels of Care are uniform across the national territory and therefore among all Italian Regions.

The State-Regions Understanding of 23 March 2005 provides for the establishment, at the Ministry of Health, of the Permanent Committee for the verification of the provision of Essential Levels of Care, which is entrusted with the task of verifying the provision by the Regions of the Essential Levels of Care in conditions of appropriateness and efficiency in the use of

resources, as well as the congruence between the services to be provided and the resources made available by the National Health Service.

The Ministerial Decree of 21 November 2005 establishes the Permanent Committee for the verification of the LEA.

The Permanent Committee for the verification of the provision of Essential Levels of Care (LEA Committee), established at the Ministry of Health, has the task of monitoring the provision of the LEA by the Regions, verifying that the conditions of appropriateness and compatibility with the resources made available for the National Health Service are respected.

To this end, the Committee annually prepares the so-called "LEA Questionnaire", by filling in which the Regions subject to verification (Regions with ordinary statutes and Sicily) must provide information relating to the obligations that they are required to fulfill in order to access the increased funding of resources allocated to the SSN (so-called "bonus quota").

The LEA Questionnaire reports the obligations referred to in Articles 1, 3, 4, 10 and Annex 1 of the Understanding of 23 March 2005, to which are added all those established by subsequent Laws, Agreements and Understandings in the State-Regions Conference and other health planning acts.

The LEA Committee certifies that the Regions have fulfilled the obligations under their jurisdiction; this certification constitutes the prerequisite for the final verification of the obligations, which is carried out by the Technical Table established at the Ministry of Economy and Finance for the purposes of access to the bonus quota.

To support the activities of support, verification and monitoring, as well as to rationalize the sending of documentation, received from the Regions or produced during the investigation phase, the Ministry of Health has made available the dedicated document management system "SiVeAS – Management of documents of the Recovery Plans and the LEA Committee".

The increasingly detailed monitoring reports on the provision of LEA by the Regions have been made public since 2001. While it is clear that the results determine, together with other regional obligations, access to the bonus quota of the National Health Fund (in 2023 equal to 0.50% of the annual National Health Fund), it is not clear what the sanctions or structural interventions are in practice if the Regions do not maintain the Essential Levels of Care. There are Regions that for many years have been non-compliant with respect to maintaining the Essential Levels of Care or still are, or that were already suffering in terms of provision of health services since the establishment of the National Health Service. The interventions indicated by the above-mentioned Decrees were clear only in the case in

which the Regions present an economic-financial imbalance of the Regional Health Service, indicating the obligation to present a recovery plan (with the commitment to maintain the Essential Levels of Care), to proceed with the freeze on hiring and external consultancy, up to the increase in regional tax rates.

Only with the Legislative Decree of 4 August 2016, n. 171 in art. 2 did the General Directors of the Local Health Authorities appointed by the Regional Council have the obligation to maintain the Essential Levels of Care and not only the task of achieving the economic-financial objectives assigned by the Regional Council.

Maintaining the Essential Levels of Care is a condition for the Regions to enter the list of benchmark Regions for the purposes of determining standard costs and standard needs in the healthcare sector, but this does not represent a direct tool for increasing the number of Regions that actually maintain the Essential Levels of Care.

It had been established that since 2013 the distribution of health needs to the Regions proposed by the Ministry of Health, and on which an Understanding is reached at the State-Regions Conference, should refer to standard costs and therefore the distribution to the Regions should conceptually correspond to the financing of the Essential Levels of Care to be guaranteed by each Region in conditions of appropriateness and efficiency in the use of resources. In practice, the formulas used for the distribution of the National Health Fund make these costs irrelevant. In fact, the standard costs, or the costs incurred by the benchmark regions, are nothing more than a multiplicative constant present in both the numerator and the denominator of the formula for determining the share to be allocated, therefore the result is independent of the regions chosen (Paudice, 2020). From 2023, the new distribution criteria to be adopted for the distribution of the National Health Fund (share of health needs paid by the State) to the regions are: resident population, frequency of health consumption by age, mortality rates of the population (< 75 years), indicators relating to particular territorial situations considered useful for the purpose of defining the health needs of the regions (commonly referred to the concept of deprivation). From 2021, as presented in the latest work collected in this book, the National Health Equity Program 2021-2027 intervenes in those Regions where, compared to the rest of the country, there are lower levels of satisfaction of the standards defined at national level (the Essential Levels of Care) and greater financial and organizational difficulties in managing the health service.

Therefore, in recent years it seems that there is a greater awareness than in the past of the structural gaps between regional health systems and that there is an attempt to find solutions to try to reduce them, to ensure (in how

much time is not indicated) the uniform maintenance of the Essential Levels of Care in all Italian Regions. On the other hand, the law on differentiated autonomy of 2024 could lead to opposite effects.

4. The Issue of Financing the National Health Service

It has been said that the Italian National Health Service was born outside of an organic welfare system as broad and articulated as that of William Beveridge's United Kingdom and how this lack made it partly difficult to achieve the objectives of that ambitious project.

It has been said of the difficulty of creating a National Health Service that guarantees the homogeneous maintenance of the Essential Levels of Assistance throughout the national territory, if it started from strong regional imbalances that have not been remedied.

But the other critical point of the institution of the National Health Service in Italy is the problem of financing. It has been seen that precisely within the 1977 draft law there was a strong desire to apply rigorous parameters to quantify the amount of financial resources to be used for the creation of an efficient National Health Service and to verify in concrete terms, year by year, the real correspondence of these resources to the global dimension of those produced by the country. These were years of strong growth in health spending with obvious difficulties in evaluating the effectiveness and appropriateness of health interventions. More than forty years have passed since the establishment of the National Health Service in Italy and especially in the decade 2010-2020, also in correspondence with the numerous State spending review measures, but also with a process of rationalization of interventions and adoption of increasingly qualified methodologies of direction and evaluation, health spending has become much more focused on effectiveness and appropriateness. And, at this point, as noted in the final document of the fact-finding investigation carried out by the twelfth Permanent Commission on Hygiene and Health of the Senate of the Italian Republic, with rapporteurs Senators Luigi D'Ambrosio Lettieri and Nerina Dirindin (Senate of the Republic, 2018), the choice of the amount of funding for the National Health Service cannot be linked simply to the real correspondence of these resources to the global dimension of those yearly produced by the country. The National Health Service protects a fundamental right and is an investment in health and society and the financing should be quantified based on the objectives that need to be achieved, without prejudice to the fight against waste and improper profits of individuals.

5. Secondary Prevention

The works presented in this book concern a case study relating to the reorganization of the services of the Regional Health Service for the early detection of breast cancer in the metropolitan area of Bologna. They, therefore, concern the area of secondary prevention which has the objective of diagnosing diseases before the manifestation of the related symptoms, when this early detection allows for the use of therapeutic interventions that are resolutive or in any case soothing. Interventions whose effectiveness would be null or significantly reduced, if they were taken late when the disease was manifest.

The characteristics of the universalistic National Health Services we have discussed is precisely that of dealing comprehensively with the health of citizens and therefore, unlike mutualistic or private systems, of having within itself both prevention services, diagnosis and treatment services, and rehabilitation.

In Beveridge it was seen that the role of prevention was always underlined for its importance of intervening early to succeed in the cure.

Secondary prevention, and early detection in particular, have evolved enormously over the years compared to what was outlined in the draft law establishing the Italian National Health Service presented here. The progress of medicine, the possibility of having greater resources for prevention have allowed the scope to grow since the late 1990s, to successfully extend early detection to new diseases, to organize increasingly effective population screening with the important support of the European Union. The National Health Service, since the definition of the Essential Levels of Care in 2001, identifies screening programs as an "Essential Level of Care". Secondary prevention, however, responds largely to a private need for advance knowledge of the presence of diseases before the symptoms appear and therefore the National Health Service, in preparing the strategies for organizing related services, must take into account the needs of individuals and the best strategies to achieve a result of protecting the health of people that is not only to the advantage of individuals, but of the entire community.

6. The Plan of the Work

The book is composed of six works written and presented between 2017 and 2024 of which I am the sole author.

1. *Maintaining Equity in the Italian National Health Service at the Time of the Measures for Reorganizing the Offerings of Outpatient Specialist*

presents the implications for household well-being and finances of the solutions adopted after 2010 to deal with the problems of waiting lists and the control of spending for the services of early detection of breast cancer, redirecting the services toward the screening of public health. The analysis is updated to 2016. The paper was presented as a poster at the 2017 American Economic Association (AEA) Annual Meeting in Chicago, with American Economic Association President-elect Alvin Roth chairing the Meeting program.

2. *Control Systems in the Italian National Health Service and the Maintaining of the Principles of Universality, Equality and Equity: Avoiding Discrimination and "Exit" Phenomena* evaluates the effectiveness or "inability" of the control mechanisms to guarantee citizens the rights deriving from the principles of the NHS and to avoid discrimination and "exit" phenomena. The context of the study is the Regional Health Service of Emilia-Romagna with the measures adopted after 2010 to deal with the problems of waiting lists and the control of spending that in the area of the Bologna Local Health Authority it has meant the redirecting of the services of early detection of breast cancer toward the screening of public health. The analysis is updated to 2017. The paper was presented as a poster at the 2018 American Economic Association (AEA) Annual Meeting in Philadelphia, with American Economic Association President-elect Olivier Blanchard chairing the Meeting program.
3. *Universality, Equality and Equity in the Italian National Health Service: highlighting discrimination phenomena in accessing health services using institutional and administrative data* presents two ways to achieve information on discrimination in accessing health services in the Italian National Health Service: a) analyzing the data of the monitoring of the Essential Levels of Care; b) reconstructing the access choices from the administrative data of the Regional Health Services. With the data (2002-2016) from the Regional Health Service of Emilia-Romagna on the access to the mammographic services in the AUSLs of the region (about 5,000,000 bilateral mammographic service records; data accessed as citizen in Generalized Civic Access) I present the results of a longitudinal analysis on the different paths for the early detection of breast cancer undertaken by women in Bologna and in the other AUSLs in Emilia-Romagna after the solutions adopted after 2010 to deal with the problems of waiting lists and the control of spending for the services of early detection of breast cancer, redirecting the services toward the screening of public health. The paper was presented as a poster at the 2020 American Economic Association (AEA) Annual Meeting in San

Diego, with American Economic Association President-elect Janet Yellen chairing the Meeting program.

4. *Individual prevention and organized screening: a reflection on data of the access of early detection of breast cancer in Emilia-Romagna, and in Bologna in particular, after the reorganization of the offering* starts to evaluate with the data (2002-2016) from the Regional Health Service of Emilia-Romagna on the access to the mammographic services in the AUSLs of the region (data accessed as citizen in Generalized Civic Access) the personal impact of the reorganization of the offer of early detection services for breast cancer for women that want to access to mammograms and to describe the choices of women (in the AUSL of Bologna) and how they have dealt with the reorganization of the offer from year to year starting from the regional provisions of 2010. The paper was presented as a poster at the 2022 American Economic Association (AEA) Virtual Annual Meeting, with American Economic Association President-elect Christina Romer chairing the Meeting program.
5. *Maintaining the Secondary Prevention Against Breast Cancer for Women in Emilia-Romagna (IT) and External Social and Economic Shocks (2002-2016)* presents on the basis of the same data provided to me (as a citizen in Generalized Civic Access) by the Regional Health Service and for the whole Emilia-Romagna region an analysis of the effects of social and economic shocks, external to the National or Regional Health Service or Local Health Authority, on the perseverance of women in Emilia-Romagna in maintaining the secondary prevention path against breast cancer. The paper was presented as a poster at the 2023 American Economic Association (AEA) Annual Meeting in New Orleans, with American Economic Association President-elect Susan C. Athey chairing the Meeting program.
6. *The Italian National Recovery and Resilience Plan (NRRP) 2021-2026, the National Health Equity Program (PNES) 2021-2027, the Women, and Their Health* evaluates in what way the Italian National Recovery and Resilience Plan and the National Health Equity Program respond, and with what kind of innovations, to the problems of secondary prevention against cancer for women in Italy. The paper was presented at the Western Economic Association International (WEAI) Annual Conference 2024 – Virtual day, with Janet Currie President-elect of WEAI. This version of the paper takes into account the suggestions that emerged during the presentation in the Session.

November 2024

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1.

Maintaining Equity in the Italian National Health Service at the Time of the Measures for Reorganizing the Offerings of Outpatient Specialist Services[1]

1. Introduction

Since the end of World War II, Europe has progressively created a welfare system in which the access to medical treatment for the entire population has been the basis of a comprehensive policy for social progress: a social security system fully developed and aimed at ensuring income security against want, disease, ignorance, squalor and idleness (Beveridge, 1942, p. 6)[2]. At the basis of this effort was a social contract accepted by the citizens in which the State did not need to accumulate reserves for actuarial risks, as it was able to finance the social security system with its power to compel successive generations of citizens to become insured and through taxation (Beveridge, 1942, p. 13).

In Italy the establishment in 1978 of a National Health Service providing universal coverage for comprehensive and essential healthcare services marked a noticeable progress in social policies and the concrete assertion of the safeguard of health as a fundamental right of the individual and collective interest (Legge 833/1978, art. 1). It should be remembered that, in addition to the universality of access, the system guarantees the equality of access to healthcare services (with the elimination of geographical barriers and guaranteeing free medical care) and envisages financial contribution from individuals regardless of their risk of disease and the services obtained, but

1. The paper was presented as a poster at the 2017 American Economic Association (AEA) Annual Meeting in Chicago (IL), January 06-08, 2017. The work was carried out within the framework of the teaching of Health Economics held by the author at the School of Economics, Statistics and Management at the University of Bologna. The approach given to the course received a mention from the Social Partners in the consultation carried out by the School for its degree programmes in October 2014. The work has benefited of a short stay at the Library of the London School of Economics.

2. A recent reflection on the Beveridge Report in Layard (2013).

only determined by their ability to contribute. Over the years the system has been equipped with increasingly appropriate instruments to meet its objectives, and has had to deal with a growing demand for healthcare services and an increase in public health spending.

Due to the characteristics of the system, any solution adopted for the management of the demand for healthcare services and the control of expenditure should be in accordance with the founding principles and the general taxation origin of the NHS funding[3].

This study intends to present, using an actual current case study concerning the metropolitan area of the city of Bologna, the solutions applied to address the problems of waiting lists (and the control of spending) for the services of early detection of breast cancer, in order to verify whether the system currently provides its citizens with management and control tools that safeguard them during the reorganisation processes, ensuring compliance with the fundamental principles that form the basis of the social contract.

Approaching the issue from a user's point of view, the author suggests supplementary guarantee instruments, such as an independent regulatory agency, to supplement the ones already in place, to safeguard the citizen when accessing the services of the public healthcare system and considers its effects to safeguard the equity and to actively contribute to improving the system.

2. The Relevance of the Analysed Context and the Design of the Study

The case studied concerns one of Italy's most advanced local healthcare systems, in both structures and organisation, for the needs of the citizens[4], and may therefore be considered an example of the real capabilities of the current organisation of the national healthcare system and of its control system to respond to the reorganisation processes, guaranteeing the maintaining of its fundamental principles. On the other hand the case studied concerns breast

3. On the differences between the concepts of "security" and "assistance" and the different management of devoted funding see Castellino, Fornero (2002). On the preference for the National Health Service compared to the Social Health Insurance see OECD (2015).

4. In the last published report, for the year 2013, of the Italian Ministry of Health on the monitoring of the achievement of the objectives of public health protection, Emilia-Romagna was at the top of the ranking of the Italian regions for the compliance with the Essential Care Levels (LEA) (Ministero della Salute – Direzione Generale della Programmazione Sanitaria, 2015).

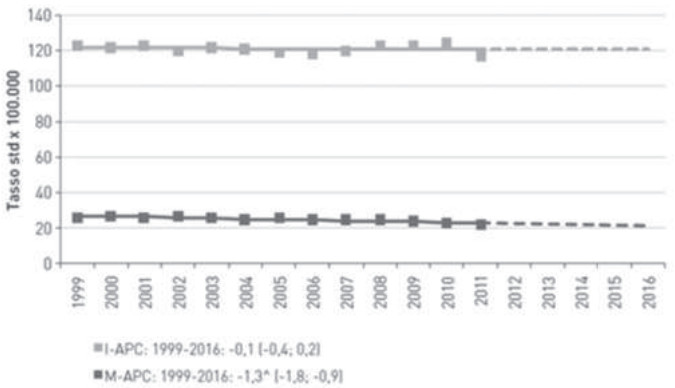
cancer that in the European Union is the most common cancer and the most common cause of death due to cancer in women. In Italy breast cancer is the first cause of mortality amongst the female population between 45 and 64 years of age, accounting for 14% of total deaths and epidemiological data show how in general, even if from the early 1990s to the present there has been a gradual decline in mortality, the incidence of this disease seems to stabilise only in the most recent years and the prevalence is on the rise (Ministero della Salute, 2014). In *Graphics 1-2* we show the trends of the standardized incidence and mortality rates (all ages and ages 50-69 years) for breast cancer from the annual report on cancer of the Associazione Italiana di Oncologia Medica (AIOM) and of the Associazione Italiana Registri Tumori (AIRTUM) (AIOM, AIRTUM, 2016).

Therefore in the fight against breast cancer in Italy the problem does not seem to be specifically the control of the demand for the services of early detection of breast cancer (which generated the waiting lists), but, as it appears from the Report of a European survey on the organisation of breast cancer care services from the European Commission – Joint Research Centre of 2014 (European Commission – Joint Research Centre, 2014), it seems to be rather the implementation of an advanced system of early detection, treatment, follow-up, and psychological support activities for women suffering from breast cancer.

The study is made up of two parts. The first part presents the measures implemented starting in 2010 at the regional and local levels with the aim of reducing the waiting lists for mammograms, and describes and comments on the changes made with regard to the access procedures for the service and the organisation of the structures for the early detection of breast cancer in Bologna. Next, the reactions of the users, associations, and media are presented, and the responses of the Local Health Authority of Bologna are analysed. Lastly, an analysis is made of the consequences on the possibilities for access to the services which were formerly offered to the city's women via spontaneous access, and the new costs for users are assessed. The second part essentially analyses the system of tools implemented to safeguard the principle of equity within the National Health Service and by the Emilia-Romagna regional body, evaluating whether it has been able to report the effects of the reorganisation process presented and influence their control. Having verified that these tools are substantially inapplicable to such reorganisation processes, a proposal has been made of an alternative tool for safeguarding the rights of national healthcare system users, such as the possibility of creating an independent administrative authority tasked with the direction, control and sanction of the National Health Service, as a guarantee of founding principles and users' rights.

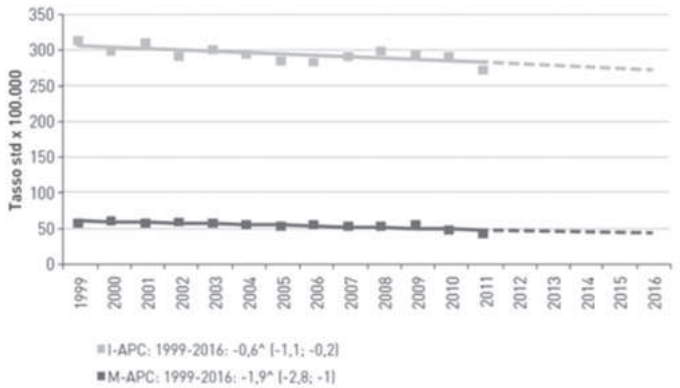
The method of analysis adopted is the study of the events that occurred and the repercussions that derived through the documentary information and statistical data available in the institutional websites and by consulting directly the organisations involved. It is reconstructed the path of the complaints through the different channels, highlighting the reactions and effects achieved. The study assumes the characteristics of the analysis of an experiment.

Graphic 1. Breast cancer incidence and mortality



Source: AIOM, AIRTUM, 2016, p. 67

Graphic 2. Breast cancer incidence and mortality – age 50-69



Source: AIOM, AIRTUM, 2016, p. 67

Part A. Case Study

1. The Origins

The starting point for this study is an analysis of a change of strong impact for the female population of the city of Bologna with regard to the offering of mammograms for the early detection of breast cancer made by the Local Health Authority (Azienda Unità Sanitaria Locale – AUSL) of Bologna in recent years.

In 2012, a new oncology centre was set up at the Bellaria Hospital, with a new Breast Unit, and the new regional strategy for improving access to outpatient specialist services, in application of Regional Council Decree 1532/2006, "Regional plan for the reduction of waiting lists", was adopted. The plan includes measures designed to reduce waiting lists for mammographic exams, while the rules for scheduled access (screening programmes) and spontaneous access to mammograms for the early detection of breast cancer in the metropolitan area of the city of Bologna were changed.

1.1. The Breast Diagnostic Centre of Bologna's Maggiore Hospital

As of May 2011, it was no longer possible to book mammograms (even with one-year waiting lists) at the breast diagnostic centre of the Maggiore Hospital in Bologna ("*Senologia del Maggiore*": Breast Pathology Department). The users of the Single Booking Centre (*Centro Unico di Prenotazione*: CUP 2000) were subsequently informed that the screening service and care pathways were being transferred to the Breast Unit of the Bellaria Hospital in Bologna, in the newly created oncology centre.

The women covered by the AUSL of Bologna were accustomed to a spontaneous access for routine breast exams at the centre of the Maggiore Hospital, and therefore during that period many users contacted the booking service, but were told that the booking was closed and the reason why was unknown.

The trade unions immediately went into action, seeking to find out the reason for the suspension, and asserting that it was not possible to close the booking and that this was a guarantee that had been given by the Province and the AUSL.

When contacted, the Bologna AUSL explained that the reason for the suspension of the booking service for the Maggiore hospital was the start-up of the new Breast Unit at Bellaria Hospital, which would have brought together, within a single oncological centre, all the early detection, treatment,

follow-up, and psychological support activities for women suffering from breast cancer, while the Maggiore Breast Pathology Department would have been transferred to the same centre. The mammograms not included in the screening programme, formerly available at the Maggiore Breast Pathology Department, would have been bookable at the other facilities in Bologna and its province. The AUSL stated that the care pathways and screenings, too, would have been transferred to the Breast Unit at the Bellaria Hospital (*Il Resto Del Carlino* – Bologna, 2011).

1.2. The New Breast Unit of Bellaria Hospital

> The new Breast Unit of the Bellaria looks to the future. In fact, the European provisions state that within the next three years the prevention and treatment of breast tumours are to be performed exclusively by Breast Units certified by EUSOMA (European Society of Breast Cancer Specialists). The Bellaria Breast Unit has already initiated the certification procedure.
>
> […] The new Breast Unit is housed, together with Radiotherapy, in the new Pavilion H of Bellaria Hospital. The pavilion has an area of 2,750 square metres, situated on 5 floors; it was built with an investment of 5,302,656 euro, in addition to 1,100,000 euro for the facilities necessary for the diagnostic equipment. The Breast Unit also received a donation from the Fondazione Del Monte of a 3D digital mammography system, a stereotaxic biopsy system, two ultrasound tomography machines, and three systems for burning CDs, for a total value of 500,000 euro.
>
> Altogether, at the Breast Pathology Department of the Breast Unit there are 4 mammography systems, one of which for stereotaxic biopsy, two ultrasound tomography machines, and one ultrasound machine, situated in three mammography rooms connected to three outpatient ultrasound clinics, and in one biopsy room." (Regione Emilia-Romagna – Portale Saluter, 2012)

1.3. The Consequences

Since 2011 the female population of Bologna no longer had the availability of a Breast Pathology Unit open to the public for the early detection of breast cancer, which was included within the context of the Maternity and Paediatrics services of the Maggiore Hospital and located in the city centre, easily reachable by public transport. Therefore a facility that received women not when they were already clearly ill, but throughout their entire lifetime, one where they could take care of their health as a whole. And it thus also covered the early detection of breast cancer, using the most advanced methods and instruments.

2. Characteristics of the Facilities Available as of September 2015 for Mammograms of Organised Screening and Spontaneous Access, According to the Information Provided by the Bologna Local Health Authority, "AUSL"

The website of the Bologna AUSL (Azienda Unità Sanitaria Locale di Bologna, 2014a) indicates that, for screening programmes, mammograms are performed:

- at the 3 multi-purpose clinics of the Bologna AUSL: Casalecchio, San Lazzaro di Savena, San Pietro in Casale;
- at the 5 hospitals of the Bologna AUSL: Bazzano, Bellaria, Bentivoglio, San Giovanni in Persiceto, Vergato,
- and at the University Hospital of Bologna.

The Bologna AUSL website also states that mammograms for early detection, with spontaneous access to the services of the Regional Health Service (SSR), can be had in 10 reported facilities (Figure 1), of which only two are in the city of Bologna; these are private facilities without any specialisation in the breast pathology field (Azienda Unità Sanitaria Locale di Bologna, 2015).

This is the only written source to which the study being conducted can refer, as the Single Booking Centre (CUP 2000) does not yet envisage the possibility to provide, at a user's request, the results of the requests for services made at its windows. That is, it does not provide the list of the facilities made available by the Bologna AUSL for the specific service, making it impossible to verify the immediate situation of the waiting lists for the service requested (in this case, for bilateral mammograms for the early detection of breast cancer with women's spontaneous access to the exams).

The service access attempts made from 2011 up to the present have always resulted in the operators giving the information of waiting times of varying lengths mostly for the radiology clinic of Bazzano and, in response to the last requests made in May 2014 and April 2015, they announced an immediate availability at an accredited private facility in Pieve di Cento. The operator stated that there have no longer been any open slots for Sant'Orsola Hospital for some time now, and that no waiting lists have been set up for that facility either (according to the operator, waiting lists for mammograms no longer exist).

A useful source of information (and of documentation for the citizen) on the requests for healthcare services with the Regional Health Service

(Servizio Sanitario Regionale – SSR) and the meeting of such requests would be possible if a trace of the request sessions remained in the person's Electronic Healthcare File (Fascicolo Sanitario Elettronico – FSE), just as a trace remains in the CUP 2000 system. A great deal of other information on the relations between users and SSR should be stored in the FSE, such as the accesses made to private freelance medical services within public facilities as a result of the non-availability of the services under the SSR.

For all centres – both for the organised screening for early detection of breast cancer and for the early detection of breast cancer as a mindful, informed choice by women receiving mammograms via spontaneous access – the pages of the Bologna AUSL website do not state whether the facilities where the mammograms are performed are certified by EUSOMA, as envisaged by the European Union (Commission of European Communities, 2003; Perry *et al*., 2013; European Parliament, 2006) and ratified by Italy in 2014 in the guidelines for the establishment of the network of the breast units (Conferenza Stato Regioni, 2014), for a real protection of women's health and an effective use of resources. Also not indicated, as requested by EUSOMA, are the type of mammography unit (except, through the website, for one of the private facilities in Bologna) and the structure responsible for its almost daily maintenance. Except for the Sant'Orsola University Hospital[5] (information available on the University Hospital's website) and one of the private facilities in Casalecchio di Reno (from facility website), the team or names of the team members are not indicated either. Other information always omitted includes the number of mammograms read by each breast pathologist each year, and whether a double reading of the mammograms is envisaged (Wilson *et al*., 2013) (*Table 1*).

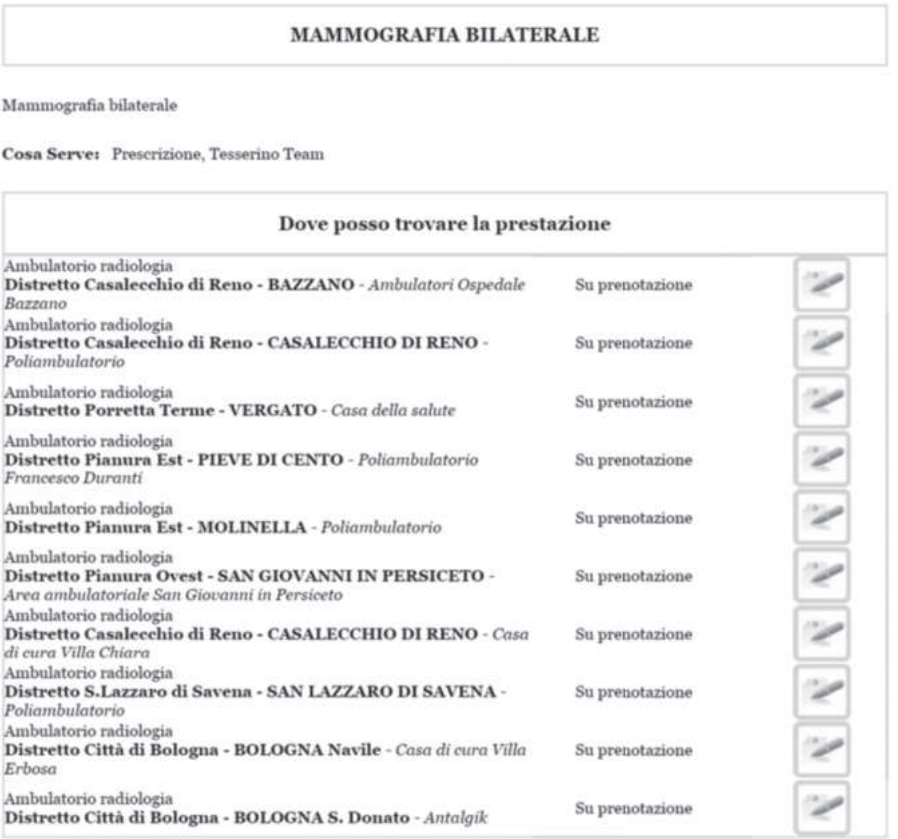
Only for the mobile unit does the page devoted to the breast cancer screening programme on the Bologna AUSL website specify:

> Furthermore, since July 2007 they are also performed in the Mobile Mammography Unit. The vehicle, equipped with a latest-generation digital mammography unit, reaches all the towns that do not have a mammography facility in the immediate vicinity or which, due to particular morphological conditions of the territory, are poorly served by transport. […] The mobile mammography unit is totally autonomous, and therefore does not require backing by any healthcare facility. The mammogram is performed aboard the vehicle by a radiologist, and the results are then evaluated by a physician [*underscoring ours*] of the Breast Pathology Department of the Bellaria-Maggiore Hospital. The breast cancer screening campaign is conducted with the involvement

5. The 5 hospitals of the Bologna AUSL of Bazzano, Bellaria, Bentivoglio, San Giovanni in Persiceto, Vergato do not have any website.

of a team of professionals from the Oncology Operational Units (e.g. Breast Pathology, Radiology, Anatomical Pathology) and Screening Centre (Azienda Unità Sanitaria Locale di Bologna, 2014a).

Figure 1. Facilities that perform mammograms in spontaneous access in Bologna metropolitan area with the Regional Health Service (SSR)



MAMMOGRAFIA BILATERALE

Mammografia bilaterale

Cosa Serve: Prescrizione, Tesserino Team

Dove posso trovare la prestazione

Ambulatorio radiologia **Distretto Casalecchio di Reno - BAZZANO** - *Ambulatori Ospedale Bazzano*	Su prenotazione
Ambulatorio radiologia **Distretto Casalecchio di Reno - CASALECCHIO DI RENO** - *Poliambulatorio*	Su prenotazione
Ambulatorio radiologia **Distretto Porretta Terme - VERGATO** - *Casa della salute*	Su prenotazione
Ambulatorio radiologia **Distretto Pianura Est - PIEVE DI CENTO** - *Poliambulatorio Francesco Duranti*	Su prenotazione
Ambulatorio radiologia **Distretto Pianura Est - MOLINELLA** - *Poliambulatorio*	Su prenotazione
Ambulatorio radiologia **Distretto Pianura Ovest - SAN GIOVANNI IN PERSICETO** - *Area ambulatoriale San Giovanni in Persiceto*	Su prenotazione
Ambulatorio radiologia **Distretto Casalecchio di Reno - CASALECCHIO DI RENO** - *Casa di cura Villa Chiara*	Su prenotazione
Ambulatorio radiologia **Distretto S.Lazzaro di Savena - SAN LAZZARO DI SAVENA** - *Poliambulatorio*	Su prenotazione
Ambulatorio radiologia **Distretto Città di Bologna - BOLOGNA Navile** - *Casa di cura Villa Erbosa*	Su prenotazione
Ambulatorio radiologia **Distretto Città di Bologna - BOLOGNA S. Donato** - *Antalgik*	Su prenotazione

Source: Azienda Unità Sanitaria Locale di Bologna (2015)

Table 1. Information provided by the facilities that perform mammograms in spontaneous access in Bologna metropolitan area with the Regional Healt Service (SSR)

FACILITIES	LOCATED IN THE CITY OF BOLOGNA	INFORMATION PROVIDED					
		SPECIALISATION IN BREAST PATHOLOGY FIELD	INFORMATION IF EUSOMA CERTIFIED	INDICATION OF TYPE MAMMOGRAPHY UNIT	NAME OF TEAM MEMBERS	N. OF MAMMOGRAMS READ EACH YEAR BY B.PATH.	IF DOUBLE READING OF MAMMOGRAMS ENVISAGED
Ambulatorio radiologia Distretto Casalecchio di Reno - BAZZANO - Ambulatori Ospedale Bazzano	NO	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Casalecchio di Reno - CASALECCHIO DI RENO - Poliambulatorio	NO	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Porretta Terme - VERGATO - Casa della Salute	NO	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Pianura Est - PIEVE DI CENTO - Poliambulatorio Francesco Duranti	NO	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Pianura Est - MOLINELLA - Poliambulatorio	NO	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Pianura ovest - SAN GIOVANNI IN PERSICETO - Area ambulatoriale San Giovanni in Persiceto	NO	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Casalecchio di Reno - CASALECCHIO DI RENO - Casa di Cura Villa Chiara	NO	NO	NO	NO	YES	NO	NO
Ambulatorio radiologia Distretto S.Lazzaro di Savena - SAN LAZZARO DI SAVENA - Poliambulatorio	NO	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Città di Bologna - BOLOGNA Navile - Casa di Cura Villa Erbosa	YES	NO	NO	NO	NO	NO	NO
Ambulatorio radiologia Distretto Città di Bologna - BOLOGNA S. Donato - Antalgik	YES	NO	NO	YES	NO	NO	NO

Source: Our elaboration on Azienda Unità Sanitaria Locale di Bologna (2015)

Table 2. Waiting times (in days) recorded from 1st October 2013 to 3rd March 2014 for the outpatient specialist services subject to monitoring of the waiting times with istitutional territorialisation (Bologna AUSL structures, Accredited private structures, Policlinico Sant'Orosola, Istituto Ortopedico Rizzoli)

BOLOGNESE METROPOLITAN AREA						
GROUP OF SERVICES	W.T. on 1 October 2013	W.T. on 4 November 2013	W.T. on 2 December 2013	W.T. on 7 January 2014	W.T. on 3 February 2014	W.T. on 3 March 2014
BREAST ULTRASOUND	100	556	158	2 L No Cup	2 L No Cup	2 L No Cup
ELECTROMYOGRAM	23	22	14	20	28	120
MAMMOGRAM	574	66	64	22	29	22
LOWER ABDOMEN MRI	165	207	136	273	122	199
BRAIN MRI	3	14	2	7	8	10
SPINAL MRI	7	3	2	3	4	7
MUSCULOSKELETAL MRI	2	12	12	1	5	9
VASCULAR SURGERY VISIT	7	7	92	6	7	7
GASTROENTEROLOGY VISIT	2	2	3	6	2	4

Legenda: 2 L No Cups: form January 2014 ultrasound scan of the breast are considered as second-level diagnostic service, provided only within pathways for patients already under a specialist's care.
Source: Azienda Sanitalia Locale di Bologna (2014b).

3. Waiting Times for Spontaneous Access to Mammograms for Early Cancer Detection

3.1. The Bologna AUSL Information on Waiting Lists

On its website, the Bologna AUSL provided, at least until May 2014 (Azienda Unità Sanitaria Locale di Bologna, 2014b; Gatti, 2014), information on the waiting lists for specialist services for which the waiting times are monitored, together with the locations of facilities throughout the territory for the years 2013 and 2014.

These range from 574 waiting days in October 2013 to 22 waiting days in January and March 2014 (*Table 2*), but a personal check at the CUP 2000 (without the issue, as previously mentioned, of any written documentation) revealed that the waiting times were reduced by the recourse to facilities outside the city of Bologna, where the mammograms are not performed in Breast Pathology Diagnostics Units (Società Italiana di Radiologia Medica – SIRM, 2004, p. 581) or in accordance with the quality standards set by European Union.

It is no longer possible to book ultrasound scans of the breast, which are now considered second-level diagnostic services, provided only within pathways for patients already under a specialist's care. It is not clear how this decision can comply with the recommendations of the Italian Medical Radiology Association to use ultrasound scans in combination with mammograms both in cases of spontaneous access and in organised screening programmes, particularly for women with breasts that are radiologically dense, and in addition to an examination by a breast pathologist (Società Italiana di Radiologia Medica – SIRM, 2004, p. 583).

4. The Policy of the Bologna AUSL on the Spontaneous Access Waiting Lists for Mammograms for Early Detection of Breast Cancer

The press release from the Local Health Authority of Bologna of September 2012 presents its decisions on waiting lists and policies for the providing of specialist services (examinations and tests):

> The information contained in the cases reported today by *Il Resto del Carlino* does not permit a precise reconstruction.
>
> […] With regard to the request for bilateral mammograms, it must be remembered that since 1997 in Bologna, as in the entire Emilia-Romagna region,

there is a specific cancer screening programme for breast cancer. The screening involves all women aged 45 through 74 years – approximately 176,000 in the metropolitan area of Bologna – who are all offered screening mammograms and in-depth diagnostic tests, in addition to access to any necessary therapies and treatments. Urgent and postponable urgent mammograms are ensured, for the clinical conditions defined by the regional indications, within 72 hours and 7 days, respectively. Women being followed by the SSR, who must undergo follow-up procedures after cancer pathologies, do not need to book their tests, because they access them directly through their specialists.

From the elements contained in the article, it can only be inferred that the mammogram request was not of an urgent nature.

The Authority is willing, through its Citizens Relations Office (Ufficio Relazioni con il Pubblico: URP), to provide more complete information to those interested.

Examinations and tests in the metropolitan area of Bologna

Approximately 14 million specialist services (examinations and tests) were provided in 2011 by the Bolognese healthcare facilities to citizens residing in the metropolitan area, broken down into over 2,000 different types and 6,000 specialist facilities. Compared to the regional average, in the territory of Bologna the number of specialist services provided is 8% higher.

The reduction of the waiting times, in line with the regional indications, has been achieved thanks to the adoption of innovative organisational and instrumental solutions like booking schedules that are always open, thus guaranteeing that the citizen will always be able to book any service, whether a first or follow-up appointment, without time restrictions; there are also 20 "guaranteed" pathways for examinations and tests for which critical factors have been recorded previously.

[…] Furthermore, particular commitment has been devoted to the distinction and separation of the booking of the first appointment from the subsequent ones, arranged directly with the specialists. The direct and complete taking on of the case by the outpatient clinic specialist is an important innovation. Thanks to dedicated IT platforms, the specialist books directly the diagnostic services after the first one, for example the follow-up appointments. This procedure is already present today for 24 diagnostic-therapeutic-care pathways for patients with cancer, orthopaedic problems with trauma pathologies, complex rheumatology pathologies, thyroid pathologies, women included in the screening programme for breast cancer, and pregnant women being followed by family clinics.

The creation of new diagnostic-therapeutic-care pathways and the strengthening of the already-existing ones will guarantee for citizens, through the direct booking by the specialist, definite and appropriate times and places for diagnostic services and check-ups, and the maximum simplification of the access. This will improve the quality of care, in particular for persons with chronic pathologies, and will have a positive impact on the appropriateness of prescriptions (Azienda Unità Sanitaria Locale di Bologna, 2012).

5. Remarks on the Policy of the Bologna AUSL on the Spontaneous Access Waiting Lists for Mammograms for the Early Detection of Breast Cancer

The press release (unlike the data on waiting lists, the press release has not been removed from the AUSL Bologna site) documents and clarifies how the current policy on providing outpatient services and the management of early detection breast cancer works, starting from choices of the Regional Administration.

With regard to this approach, it has already been pointed out that the Bologna AUSL website and other information sources do not mention the quality of the facilities (and personnel) performing bilateral mammograms made available for the early detection of breast cancer, whether by spontaneous access or through organised screening programmes.

The reference to the presence of a screening programme highlights the trend of recent years to shift the safeguard of women's healthcare concerning breast cancer to public health services, rather than focus on individual prevention (Ministero della Salute, 2014, p. 34). But it should be noted that, taking into account how the screening programmes are currently organised in Italy, the two levels of healthcare services are quite separate and distinct within the Essential Care Levels (Livelli Essenziali di Assistenza – LEA[6]) established by the National Health Service since 2001. The screenings belong to the "areas of activity of collective prevention and public health" and the providing of bilateral mammograms for early cancer detection via spontaneous access belong to the "areas of activity of district healthcare", specifically to the "area of outpatient specialist care"[7].

This distinction between objectives and functions also corresponds to a separation of the funding lines and their source.

The two areas have different aims (public health on the one hand and the response to the need for individual health on the other) which determine protocols that are very different and appropriate for the specific aims towards which they operate, and profoundly different ways of monitoring the results and the inexpensiveness of the actions. The decisions to be made concerning (on keeping or changing) a generalised screening programme for the early detection of breast cancer take place within a logic of cost/effectiveness

6. On the principles of the Essential Care Levels see Dirindin (2000). On the mechanisms of implementing of the Essential Care Levels see Torbica and Fattore (2005).

7. In the United States of America the reported literature shows the distinction between NBCCEDP breast cancer screening for medically uninsured and underinsured low-income women and the women that access the early detection for breast cancer within their health insurance program (Escoffery *et al*., 2012; Hoerger *et al*., 2011).

assessment (Mantellini, Lippi, 2011); the method for assessing the effects and costs of non-prevention (or no early detection) at the individual level in clinical, functional, and even sociocultural terms is quite different and more complex. Evidence of the differences can be found in the damage payments awarded in civil liability lawsuits against doctors. In this case there are no thresholds of successful extension. Every life lost is an inestimable damage. And it is the individual that is the reason for which the healthcare systems were born.

The strategic choices of the European Commission on screenings were made considering important social and health aspects. The European programme was launched after acknowledging that there are strong territorial differences in the implementation of screening programmes and in their quality, with the programmes of Sweden and Finland being the best, and today the situation is still characterised by great differences (European Commission – Joint Research Centre, 2014). Both the European Commission and the Italian Ministry of Health (Ministero della Salute – Direzione Generale della Prevenzione, 2005), as well as the Emilia-Romagna region, stress how screening programmes are implemented to reduce the social inequality of breast cancer survival and to provide a certified system that makes it possible to access effective early detection services (in addition to permitting the access to surgery, treatments, and therapies with the highest standards of appropriateness, quality, rapidity, and customisation).

From this perspective, the first level of early detection with the Regional Health Service (Servizio Sanitario Regionale: SSR) via spontaneous access (the bilateral mammogram – yearly, if so decided by the breast pathologist – plus ultrasound scan and breast examination, in addition to the possibility of being adequately informed of the possibilities for primary breast cancer prevention through a conversation with the breast pathologist) in high-quality facilities (the Breast Unit) for asymptomatic women over the age of 40 should be the point of arrival of a campaign for social inclusion and qualification of facilities initiated with the generalised screening programme (for the Emilia-Romagna region, the implementation of organised screening for early breast cancer detection has existed for 19 years now). The opposite, on the other hand, should not be true, but appears evident from various indicators in Bologna, such as the disappearance of the Breast Pathology Department of the Maggiore Hospital, the uncertainty about the quality of the facilities offering mammograms in the metropolitan area of Bologna, the disappearance of the spontaneous access to the providing of mammograms in the facilities that are probably the most qualified (Sant'Orsola and Bellaria), and the substantial disappearance of availability in the city of Bologna, the waiting lists for which, in fact, remain somewhat a mystery (and which the operator of CUP 2000 claims no longer exist).

Most probably, the general effect on wellbeing of the women (and cost) of the non-access (or access to inadequate facilities) with the SSR at the first level of early diagnosis with spontaneous access by women living in Bologna will be quantifiable only after a number of years, in terms of lives not saved, years of life lost, and quality of living lost in the remaining years of life. It must also be taken into account that, at present, only one third of the women who answer the call of the organised screening programme are able to access the one and only existing Breast Unit (certified EUSOMA) at Bellaria Hospital.

And it will also be possible to measure the (social) effect on families, the offspring involved, and the workforce: a workforce in which 60.9% of the women of Emilia-Romagna between the ages of 15 and 64 are employed. In an Universal Healthcare System by working, these women participate in a social security and tax system that reduces their net pay to less than 50% of the gross expense paid by their employers, but promises social guarantees[8].

I asked the regional Health Department – which is responsible for overseeing the operation of the region's Local Health Authorities (AUSLs), as specified by the Health Programming Directorate of the Ministry of Health – for the data on the access to the mammography services in Bologna and in the other AUSLs of the region before and after the changes made in the Bologna AUSL's offering for initial examinations and tests. The answer on December 28, 2015 was that for my research I have to refer to the published data on Screening Program (*salute.regione.emilia-romagna.it/screening/tumori-femminili/*) and to the data on the website of the AUSL of Bologna (*www.ausl.bologna.it/per-i-cittadini/scr/Screening-del-tumore-della-mammella*).

One last observation to be made on the Bologna AUSL press release of 2012 is that regarding the Authority's willingness, through its Citizens Relations Office, to provide those interested with more complete information. Since May 2012 my reports to the Public Relations Office on the impossibility of accessing the pre-existing quality structures (Maggiore Breast Pathology Department, now the Breast Unit of the Bellaria) for preventive mammograms with spontaneous access received an answer from the Bologna AUSL (under which I am registered) in February 2013 (it should take 30 days at most), only after I reported the case to the Prefect of Bologna and after that his office pressed the AUSL to provide the answer.

8. In 2016 it has been 5 years since the closure of the Maggiore Breast Pathology Department. In a context of an Universal Healthcare System probably we can no longer just talk about a lack of equity in the SSR, but we have to talk about discrimination of a large group of women in the city of Bologna.

6. The Characteristics of Organised Screening for Early Detection of Breast Cancer in Emilia-Romagna and Bologna

The Ministry of Health, in the document of the working group for the definition of specific rules for the organisation and assistance of the network of breast units of 2014, states that

> It is a fact that the screening program is "only" an approach organised to maximise the efficiency of early detection and to reduce inequalities in access to this service (Ministero della Salute, 2014, p. 34).

From the information that it was possible to gather on the screening programme for early detection of breast cancer in Emilia-Romagna and Bologna, this does not appear to be exactly true.

Women should receive a letter of invitation with a prescheduled appointment at a specific structure, which can be changed only on request.

Only one third of them will be called, or will manage to negotiate, to receive a mammogram at the Breast Unit at the Bellaria Hospital, certified EUSOMA. The remaining women will be directed to the facilities indicated on the website of the AUSL of Bologna of which little or nothing is known about all the aspects that determine the effectiveness of early detection (mammography unit, experience and updating of operators, dedicated units, …).

Women, as we have already pointed out, will not be received by a breast pathologist, but only by a mammographer who will perform the mammogram, and who will be unable to decide whether to add an ultrasound scan and, remaining within the aims of the screening programme, will have to optimise the time necessary for the exam.

They should receive the letter with the results of the exam within one month, after reading and analysis of the report by two specialists. The operators of the Screening Centre of the Bologna AUSL state over the phone that the women invited for the organised screening programme express dissatisfaction over the fact that the screening does not provide them with the disc of the test results. The answer from the Regional Coordination Office of the cancer screening programme was that it is possible to obtain the disc on request. From the information given on the AUSL Bologna website, it does not appear exactly clear that there is currently a double reading of the report.

The frequency of the call for the mammogram is every two years for women in the age group 50-74 years and once a year for women between 45 and 49, because "many scientific studies have shown that the benefit of

a range of one year is limited to the age group 45-49 years, while in the range 50-74, it has been shown that two years is a time sufficient for early diagnosis in the great majority of cases" (Servizio Sanitario Regionale Emilia-Romagna, 2013): sufficient, evidently, but not optimal.

In 2010 (the only year for which data are provided and before the reorganisation of 2011-2012), 2,164 women, equal to 35%, took part in the screening for the first time, with a slightly higher participation (41%) among those aged 45-49 years (9,004 of the 21,788 invited) (Azienda Unità Sanitaria Locale di Bologna, 2014a).

This participation rate is very low, even compared to the national average of 55% (Conferenza Stato Regioni, 2014), and much lower than the acceptable level of 50% (Osservatorio Nazionale Screening, 2014). The AUSL of Bologna does not provide details on mammograms performed in spontaneous access through the SSR, which should be of the same reliability as those from screening. Therefore we do not know (for 2009) what women's choices are for the early detection of breast cancer: whether, if they are not included in the organised screening programme, they do no prevention at all, or if they take advantage of the availability of the Maggiore Breast Pathology Department, opting for spontaneous access through the SSR.

The fact that between 40 and 50 women a day turn to the Breast Unit of Bellaria to request (now against payment through an in-house freelance system) a mammogram for early detection might indicate that there was a highly developed system of self-planned prevention by women in the city of Bologna with the SSR, and they now want to continue with the standards that were previously guaranteed them.

Such low screening programme participation data might indicate that the regulatory system organised in Bologna may help very little with access equity (will it be the women of lower social classes who give up their right to prevention?), and ends up discouraging the women who are normally accustomed to prevention.

And the general critical issues of this organised screening may be confirmed by the considerable resources made available by the European Union with the aim of achieving significant results (European Commission, 2014).

7. The Possibilities for Access to the Services Formerly Offered Via Spontaneous Access and the New Costs: the Implications For Household Economic Well-Being and Finances

7.1. Deregulation (the Same Mammography Service Available Before with Spontaneous Access and now Provided Against Payment Under a Private Freelance System Within a Public Facility at Bellaria Breast Unit)

When asked to be able to receive the early breast cancer detection service previously offered by the SSR at the Breast Pathology Department of the Maggiore Hospital with spontaneous access, the operators of the CUP 2000 (and not only) inform that the service is now available as a private freelance service within a public facility at the Breast Unit of the Bellaria Hospital, and a check shows a substantial absence of waiting times. In March 2015 the secretary's office of the Bellaria states that 40-50 women a day request a mammogram for early breast cancer detection from the in-house freelance system (against payment), following a secondary prevention regimen that, with the offering of the adequate services at the Breast Pathology Department of Maggiore Hospital, had become routine for the women of Bologna.

The same bilaterall mammogram performed by the breast pathology team of the Bellaria is available by reservation from the CUP (now with a separate phone number for the in-house freelance services), or directly from the secretary's office of the Breast Pathology department of the Bellaria, through the in-house freelance system and against payment of 106.81 euro (which may become 128.19 euro if both bilateral mammogram and ultrasound scan are performed). Other breast pathologists of the Bellaria Breast Unit offer bilateral mammograms (with ultrasound scans) in-house at slightly lower prices.

Paid access to mammograms performed by the team of the Bellaria Hospital Breast Unit means that the customised, high-quality spontaneous-access service of the Regional Health System (plus the reading and reporting of the results, latest-generation mammograms, contact with the breast pathologist, ultrasound scan, and possibility for guidance, also for primary prevention and, if necessary, for access to the complete care pathway with the same team) that the Breast Pathology Department of the Maggiore (with the very same specialists) offered the city of Bologna up until 2011 has been privatised. This system should not have been suppressed, but rather strengthened, also considering the fact that during a meeting on 1 April 2014 with the Health Commissioner of the Emilia-Romagna region, Dr Carlo Lusenti, the problems of a lack of funds indicated at the time the Maggiore

Breast Pathology Department was closed did not appear to be so significant. For these declared problems of lack of funds Federconsumatori, consumer association to the chairmanship of the Joint Consultative Committee for the "City of Bologna" district of the Bologna AUSL, declared that they had curbed their actions regarding the situation of the Breast Pathology Department in Bologna in spite of pressure from Bolognese citizens.

What is more, even if mammograms are provided by the in-house freelance system, in a field as sensitive as that of early breast cancer detection, the guarantee of patient protection that characterises the relationship with a (public) hospital organisation no longer exists. The relationship becomes one between private parties (doctor and patient), even if the physician in this case is not essentially a freelance professional, but a member of the Breast Unit[9].

In this sense we may speak of deregulation. It is not only the privatisation of a service that had previously been provided with spontaneous access by the SSR, but the type of relationship changes (and seemingly for the worse). The woman is no longer followed by a member of a complex healthcare organisation with extremely coded rules of conduct (including EUSOMA certification), but by a single doctor with his individual responsibilities, who is in a totally peculiar position, being a member of the only (it seems) Breast Unit in Bologna that can provide the levels of quality required for early breast cancer detection by the European Commission and (perhaps) also for the treatment of any cancer that may be diagnosed.

7.2. Private Diagnosis and Treatment Facilities in Bologna

The search in Bologna for private facilities capable of providing (against payment) a service comparable to that of the Bellaria Breast Unit (and up to 2011, of the Breast Pathology Department of Maggiore Hospital) for the first level of early breast cancer detection via spontaneous access revealed a variety of offerings in private centres and clinics. On the web pages of the most important private facilities consulted we found the names of the team members, but not the specific characteristics of the mammography units, result reporting procedures, or even indications of EUSOMA certification. A phone call to the booking centre of one of the largest private institutes revealed that for a bilateral mammogram, ultrasound scan, and breast

9. The transparency, the government and the management of times and waiting lists, and the in-house freelance activity in the Italian National Health Service are studied in deep in the 2016 Anti-Corruption Plan (Piano Nazionale Anticorruzione 2016) of the Italian National Anti-Corruption Authority (Autorità Nazionale Anticorruzione, 2016).

examination, the cost was 245 euro. In another private structure with breast pathology department, the web page stated that the breast pathology pathway offered is not accredited with the Regional Health System, but they specify that the costs are in line with the public rates.

Part B: How Could This Happen?

1. The Case as an Experiment to Verify the Reliability of the Procedures in Place Today for the Protection of Equity in Italy

The changes in the offerings and access procedures for mammograms for the early detection of breast cancer in the metropolitan area of Bologna have been the subject of numerous protests by women, who have seen a radical worsening of their position under the SSR and a sizable increase in the costs for receiving the same service (privately). What is more, it will be necessary to verify how many of them, during a period of economic crisis, have waived prevention, going without their yearly or biyearly (depending on the breast pathologist's indications) mammograms and ultrasound scans, thus relinquishing an important part of their health protection. But the case described here offers a chance to analyse the factors that in an advanced national healthcare system may nevertheless permit the implementation of changes of such a heavy impact on a specific group of persons, and attempt to propose institutional tools that will prevent changes of such impact taking place without taking the equity of the Italian national healthcare system into account.

All this while considering the fact that, from Beveridge's ideas in 1942 up to today's Italian healthcare system, the concept of equity has had to deal with an increasingly strong refinement of treatments, the concept of health itself, and the ways to protect and restore it. As in the other sectors of society, in the health sector, too, the objective of an increasingly costly, innovative, and complex system is not only that of guaranteeing a minimum level of care for all and permitting the elimination of need and illness for the weakest social classes, but also of guaranteeing a high level of care for all, in a society that needs an increasingly higher number of individuals capable of tackling challenges and overcoming them. Also, the pact between taxpayers and national healthcare system probably holds up thanks to these lofty aims.

In this case the women of the city of Bologna are undergoing a lack of services from the NHS and to maintain the previous levels of the services for the early detection of breast cancer they experience cuts in their spending, savings, and investment opportunities.

2. A Context Historically Focused on Social Cohesion and the Reduction of Inequalities

This experiment is even more important because it is applied to a region which, ever since the post-war period, has made social cohesion and inclusion the very basis of its makeup. Its people have provided themselves with institutions and organisations for this purpose. The public policies in the social, cultural, healthcare, and education field have been based on these aims (Finzi, 1997).

3. A Context Historically Mindful of Women's Health

The region's projects for the protection of women's health date from the 1970s, for example with the establishment of family advisory centres, and led – in 1996, with regional funds – to the implementation of regional screening programmes for early breast and cervical cancer detection, before the National Health Service specified the need for them, for the protection of individual and collective health, and established Essential Care Levels (*Livelli Essenziali di Assistenza* – LEA).

But precisely the early development of screening programmes for the early detection of breast cancer in Emilia-Romagna led women to acquire, with time, a good awareness of the necessity to take care of their health and of how to do so. These women created a customised programme of quality controls following the indications received during check-ups and tests, and in the years before 2011, they were able to achieve this in Bologna through access, under the National Health Service, to the Breast Pathology Department of the Maggiore Hospital. These prevention routines had developed not only in the more highly educated and affluent groups of the population, but in all the historic social groups of the city, achieving an aim that is at the basis of every policy for overcoming health inequalities (Costa *et al*., 2014). Of course, the programme encouraging women to practise prevention had not ended in a city where the demographic mobility and capacity for reception are high, and the environment created by the organised screening program and the quality facilities for spontaneous access was undoubtedly conducive to social inclusion and an overcoming of health inequalities.

4. But is Equity Assessed in the Italian National Healthcare System?

Equity is one of the three main underlying principles of the national healthcare system (SSN) since its foundation in 1978. But which, among the various meanings of "equity" are those currently stressed by the Italian SSN? The founding law focuses on the equality of citizens in accessing the service regardless of their individual or social conditions, ensuring the overcoming of the country's regional imbalances in social and healthcare conditions. Operationally speaking, the Ministry of Health emphasises its commitment to ensure, for all citizens, equal access for equal health needs. And it specifies the tools for implementation:

- a guarantee of quality, efficiency, appropriateness, and transparency of the service, in particular the services provided, for all;
- the providing – by physicians, nurses, and healthcare workers – of a proper communication regarding the healthcare services necessary for the citizen, adequate for his or her level of education and comprehension (informed consent, management and treatment of the particular case) (Ministero della Salute, 2013).

But how is the equity monitored by the SSN? Barsanti and Nuti point out that

> In Italy, the government demonstrates a general commitment to equality issues, but there is no formal mechanism for coordinating the implementation of policies on health inequalities across government departments; emphasis has been given to geographical equity, primarily concerning the distribution of public health care facilities (Barsanti, Nuti, 2014, p. e236).

The National Agency for Regional Healthcare Services (AGENAS), in its monitoring and assessment activity:

- verifies the distribution of the Essential Care Levels by the Regions in conditions of appropriateness and effectiveness in the use of resources;
- it monitors the health expenditure of the Regions and the sharing in the medical expense (co-pay, called "ticket" in Italy);
- with the National Results Programme (*Programma Nazionale Esiti* – PNE), it develops the assessment of the results of medical procedures in the Italian Healthcare System;
- within the regional health services, it promotes the development of processes of individual, organisational, and community empowerment.

In each of these tasks, a crucial role is played by the assessment of the equity. In monitoring the compliance with the LEA, of particular importance is the assessment of the geographical equity; for the expenditure of the Regions, the commitment for equity extends to the distribution of payments for healthcare amongst the entire population (fair financing) (Barsanti, Nuti, 2014, p. e234); the PNE comprises a comparative assessment amongst population groups (for example by socioeconomic level, residence, etc.), especially for programmes for the assessment and promotion of equity in health; in the project on empowerment, the participation and involvement of citizens, patients, and professionals are identified as being decisive for increasing the values of treatment effectiveness and equity in the use of resources.

In addition, for the vertical equity at the national level,

> the first explicit mention of social inequalities in healthcare planning and the need for their management is now rather old, dating back to the 1998-2000 National Health Plan, which in fact included amongst the nine core objectives the reduction of the gap in the healthcare of disadvantaged and less disadvantaged groups (Marra, 2014, p. 299).

For vertical equity at the regional level, Barsanti and Nuti indicate that

> Indicators of the equity of access to health care according to socioeconomic conditions may be included in a performance evaluation system (PES) in the regional context level and in the planning and strategic control system of healthcare organisations. […] The PES, in the experience of the Tuscany region in Italy, adopted indicators of vertical equity over time (Barsanti, Nuti, 2014).

5. Emilia-Romagna: A Context of Strong Commitment in the Policies for Equity in Public Health

Emilia-Romagna has achieved good performance in the AGENAS assessment and monitoring systems, in some cases becoming the point of reference for guaranteeing the levels of care and the appropriateness and effectiveness of the use of resources.

In recent years, within the activity of the Community, Equity and Participation Area, the Regional Health and Social Agency undertaken the Observatory on Equity and Diversity Management, becoming a regional point of reference for the SSR Authority and the local authorities of Emilia-

Romagna on the subject of guarantees of equity, respect for differences (of age, sex, nationality/origin, disability, sexual identity and orientation, religion and personal beliefs…), and fighting health inequalities, both for users and for workers (diversity management): a) providing guidelines for the Authority's/local programming and assessment with regard to equity, respect for differences, and diversity management (DM), in line with the guidelines provided by national and international laws and regional policies, and with the regional objectives for the Authority directorates. Furthermore, the Regional Health and Social Agency has b) contributed to increasing the knowledge on iniquities in access and treatment pathways, and on the health inequalities in Emilia-Romagna; c) disseminated the DM culture and approach, and d) contributed to disseminate the knowledge of best organisational practices (national and international) capable of promoting equity, reducing inequalities, and fostering respect for differences (e.g. Health Equity Audit [HEA], an impact assessment in terms of equity).

Within the activity of the Community, Equity and Participation Area, the Regional Health and Social Agency has also worked with the Workshop for listening to and involving citizens, the community, and professionals, of which the Information System for citizens' reports (URP – Public Relations Office) is a part. The management of these reports (including complaints) is an Authority communication tool. This tool is included among those with which the healthcare organisation takes an active approach to users, one which goes beyond the concept of protection of rights, and is strongly oriented towards the involvement and participation of the users in the organisational life.

6. And Yet It Happened in Bologna

AGENAS's tools and the regional services for verifying and protecting equity often refer to ex-post type assessments, which undoubtedly have important effects on the distribution of resources and the replanning of activities. In other cases, such as the Health Equity Audit, they are ex-ante tools, but referring to the territorial health policy programming plans. It seems there is, as yet, no consolidated way of assessing the maintaining of the principle of equity (horizontal, vertical, …) vis-à-vis a single initiative of reorganisation of the services, such as the regional measures of 2010 for the elimination of waiting lists and for the creation of the new Breast Unit at Bellaria Hospital during the same period. And in fact no trace of these assessments was found in the minutes (available online since 2011) of the Joint Consultative Committee meetings of the Bologna AUSL. In addition to the absence of an assessment of the impact in terms of equity in the

access, there is also no trace of an assessment of women's health by these measures, for comparison with the planned financial savings. It seems that even the Public Relations Office – a "tool included among those with which the healthcare organisation takes an active approach to users, one which goes beyond the concept of protection of rights, and is strongly oriented towards the involvement and participation of users in the organisational life" (Azienda Sociale Sanitaria Regionale Emilia-Romagna, 2013) – also failed. The replies to women's complaints had to arrive either through newspapers or reports filed with the Prefect of Bologna.

The changes adopted and the current organisation of the Bologna AUSL's offering of services for early breast cancer detection did not even take into account the recommendations of the scientific associations involved and the European Union's guidelines on screening for breast cancer mentioned earlier in this paper.

The case appears to be a topical one, as far as the ministerial measures for reorganising the procedures for providing outpatient specialist services of September 2015 are concerned. It seems that no heed was paid to the guidelines of the Italian Society of General Medicine, which consider

> inviolable the decision to adopt tools that already exist which, starting from the need of the individual patient, identify the most appropriate and virtuous actions to take and are capable of guiding professionals towards choices that are effective in terms of short- and medium-term clinical results.

The system was thus driven towards "payment for performance" solutions

> that reward the single professionals in differentiated manners, not on the abstract and indeterminate savings of expense, but on the real capacity to restructure the costs in relation to the clinical effectiveness of the actions taken (Cricelli, Atella, 2015).

7. A Citizens' Health Protection Proposal

The AGENAS' proposals on the empowerment and the proposals on the promotion of listening to and involving citizens and workers in a perspective of an organisational improvement and guarantee of equity made by the Emilia-Romagna Health and Social Agency, as well as the analyses on health inequalities, promote a dialogue between an authority that undertakes the responsibility for the individual's health and the individual him- or herself, so that the authority can better perform its institutional role.

In the case presented, this system has not worked. The model inclusive of citizens' requests did not exist.

The proposal we would like to make is that of changing the viewpoint of the relationship between the authority managing public health and the citizenry. To be more effective in safeguarding the equity and health of citizens, in addition to the actions of empowerment and dialogue guided by the institution, it may be necessary to introduce a public authority that guarantees the principles of the national healthcare system, to which individuals or groups of citizens can report cases of poor service and unfair changes (or those perceived as such), and to which they can turn for an assessment by a party possessing all the economic and regulatory instruments necessary for giving an answer and implementing corrections in a relatively short time.

In fact, in Italy the independent regulatory agencies operate in "sensitive" sectors, in which the presence of constitutionally guaranteed rights requires the intervention of agencies that are independent from politics and in possession of particular technical qualifications.

The heads of the governing bodies are appointed via procedures in which the essential role is played by the parliamentary bodies.

In spite of the fact that they are not based on an archetype or a general model, the authorities have several traits in common, such as their organisational and regulatory autonomy, which varies in intensity, and the power to pass regulations, apply penalties, and settle disputes, including the respective awards (Chieppa, Cirillo, 2010).

According to the law on administrative procedure the authority differentiates its operations into three distinct phases: a first intervention of supervision and monitoring; a second divided in a phase of initiative and a preliminary investigation and the last phase of decision, in the event that the prohibition is infringed. This differentiation in its operations can give to the citizens a broad spectrum of signalling and intervention. With the Authority they can reach decisions that are valid for all citizens and can correct the action of the NHS.

8. Conclusions

The study of a case of strong impact on the population of a vast geographical area can help to properly evaluate the characteristics and the importance of the effects that changes have on maintaining the principles of the national healthcare system and, in particular, on the guarantees of equity (in particular, in access to services) for all social groups, without the need

for some of these groups to leave the public system if they want to receive services guaranteed by the Essential Care Levels.

Highlighted weaknesses in the control system and safeguard the equity lead to indicate an integration of methods of protection and control, by entering a single authority close to citizens and users.

The choice of an authority that acts as guarantor of the principles of the national healthcare system, to which individuals or groups of citizens can report cases of poor service and unfair changes for an assessment, and the implementation of corrections in a relatively short time, could ultimately ensure a more stable relationship between the taxpayer and the SSN, thus avoiding exit phenomena (in Italy the underground economy is at the 11.5% of Italian GDP) and instead fostering processes of voice and improvement of the relationship.

December 2016

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2.

Control Systems in the Italian National Health Service and the Maintaining of the Principles of Universality, Equality and Equity: Avoiding Discrimination and "Exit" Phenomena[1]

1. Introduction

The Italian National Health Service (NHS) was responsible in 2015 for a public health spending equivalent of 14% of the total Italian public spending. It is funded through general taxation as health is treated as merit good.

According to the law that established the Italian NHS in 1978 it must guarantee to all citizens, in conditions of equality, universal access to the equitable provision of health services, in implementation of Article 32 of the Constitution.

The guarantees of the Italian National Health Service are associated with a high level of taxation on income (and on labor income in particular), fact that characterizes many Western European countries (Heckman, 2009).

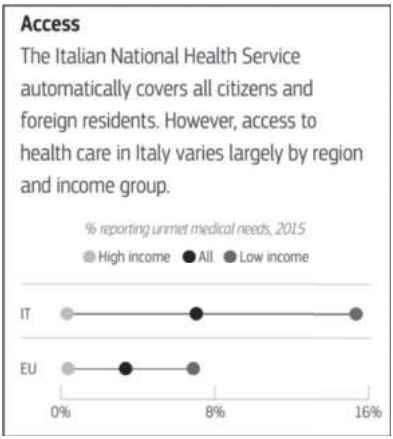
This means that for the majority of Italian citizens with low and medium incomes the guarantees of the National Health Service become essential for the economic sustainability of the protection of their health[2].

For this reason in particular the protection of equity in the Italian National Health Service must not refer only to a particular safeguard of people in severe economic difficulty (minimum standard), but it must protect the specific nature of each individual.

1. The paper was presented as a poster at the 2018 American Economic Association (AEA) Annual Meeting in Philadelphia (PA), January 05-07, 2018.

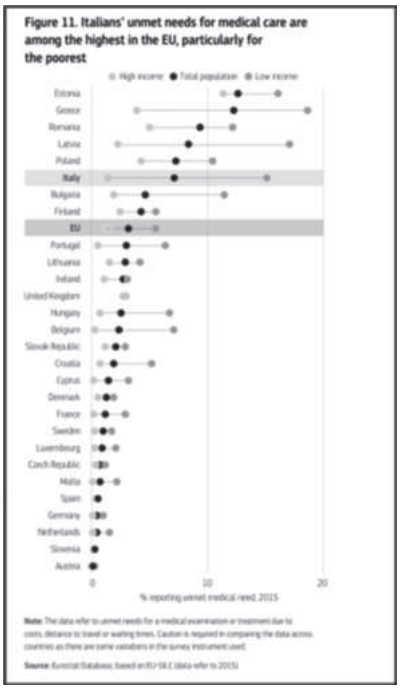
2. In addition to the considerations of the Senate Commission (2015) on the sustainability of private spending, in 2017 OECD and European Observatory on Health Systems and Policies point out that in Italy, despite universal coverage, the access to health care varies largely by region and income group (*Graphic 1*), a relatively high share of people reports unmet needs for medical care (*Graphic 2*) and more than one-fifth of health expenditure is paid directly by households (*Graphic 3*).

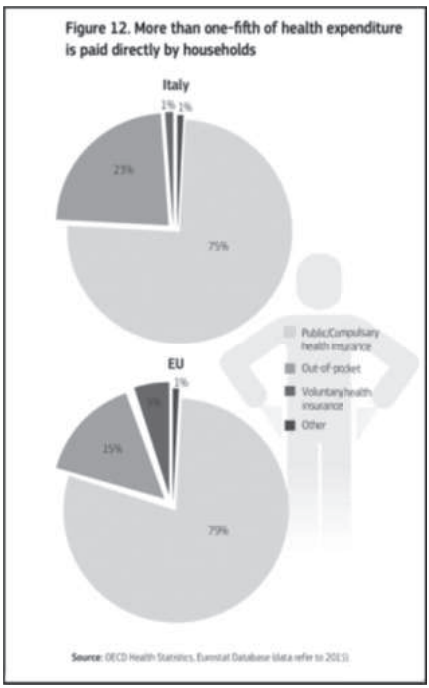
Graphic 1. OECD (2017), Italy: Country Health Profile 2017. Highlights



Source: OECD/European Observatory on Health Systems and Policies (2017)

Graphics 2-3. OECD (2017), Italy: Country Health Profile 2017. Accessibility





Source: OECD/European Observatory on Health Systems and Policies (2017)

Moreover equity in health services operationally should ensure (universally) equal treatment for equal need, equality in health, equality in access to services.

In the policy changes for the rationalization and control of expenditure, all parts of the National Health Service may easily undermine the principles on which the NHS is based (and for which the citizens pay taxes on their income) and create discrimination in several areas that all have the same dignity and need for protection.

Citizens perceive this state of difficulty and may express their discomfort in various ways with exit phenomena from the social contract (Shafik, 2017).

2. Methods and Materials

In the current institutional framework of healthcare federalism, the central government has the responsibility to ensure the right to health for all citizens through a strong system of guarantees, through the Essential Levels of Care (LEA), and at the same time the Regional Authorities have direct responsibility through their Local Health Authorities (AUSLs) for implementation of the government and the expenditure for achieving the country's health objectives. The central and regional governments are entrusted with mandatory duties, which can be traced back to the identification of guarantee mechanisms for the protection of health for the citizen throughout the country with a view to universalism and equity of access. In the changed constitutional framework of relations between the central and regional governments, the use of the agreement instruments, sanctioned in the State-Regions Conference, has been affirmed to address and solve the issues concerning the protection of health (Ministero della Salute, 2012).

In this context we analyze how health policy decisions are made and how the results achieved are monitored in the Regional Health Service (SSR) of Emilia-Romagna and its AUSLs, highlighting which indicators are used and what objectives they are meant to meet.

3. Results

To do its part in guaranteeing health protection for all citizens in a framework of universalism and equity of access, the Emilia-Romagna Region, one of Italy's most advanced local healthcare systems, has

implemented a plan that is both healthcare- and socially-oriented. The Social and Health Plan of Emilia-Romagna for the three-year period 2017-2019 (Regione Emilia-Romagna, 2017a) defines the tools necessary to tackle the new needs and the profound transformations taking place in today's society, betting on the integration between health and welfare. The Plan has "Intervention sheets" (Regione Emilia-Romagna, 2017b), which define the objectives and actions to be developed and detail the recipients and indicators for measuring the results (*Table 2*). These indicators, which we might consider as the tool for verifying the application of the objectives, do not contain exhaustive checks with regard to the maintaining of the principles underlying the National Health Service for the protection of the health of each individual tax-payer.

The sheet 32 on the "Promotion of the equity of access to healthcare services" best represents the issue of equity of access to health services and of waiting lists that have been the basis of the reorganization of breast cancer early detection in Bologna. But the indicators taken into consideration do not analyze the "equity" effects of the measures carried out in its name (Gatti, 2017).

The monitoring of interventions, also carried out through the indicators set established for assessing the achievement of the objectives, is entrusted to a group composed of all the most significant actors of the Welfare System and which for the fulfillment of its mandate may use participatory comparison methods (Regione Emilia-Romagna – Portale E-R Salute, 2017).

The Regional Government together with the general managers of the AUSLs defines corporate mandate objectives (*Table 3*) (Giunta della Regione Emilia Romagna, 2015) according to the fundamental guidelines for the Regional Health Service that the Regional Government has set down for itself. Therefore they do not deviate from the approach given to the Health Plan presented here. The Regional Government provides for the verification of the objectives of the mandate, and failure to achieve the objectives entails the termination of the contractual relationship. Recently, however, the Italian government intervened with the Madia Decree on the Reform of the Public Administration to state that these general managers must be subject to stringent verification and evaluation of the activities carried out and the results achieved, in light of the economic-financial objectives set by the Region, and in light of the results achieved for the Essential Levels of Care and the National Outcomes Evaluation Program, with automatic removal in case of failure to achieve the objectives or in case of serious and proven reasons (*mala gestio*), violations of laws or regulations or the principle of sound administration and impartiality (d.lgs. 171/2016).

Table 2. Intervention sheets of the Social and Health Plan of Emilia-Romagna (Italy) for the three-year period 2017-2019

THE SOCIAL AND HEALTH PLAN OF THE EMILIA-ROMAGNA REGION 2017-2019	
The intervention sheets	
A. Policies for proximity and home care	**C. Policies to promote individual self-sufficiency**
1 "Health homes" and "Initiative-based medicine"	22 Measures to combat poverty (SIA/REI, REST)
2 Reorganization of the integrated hospital and territorial network	23 Job placement for fragile and vulnerable persons (Regional Law 14/2015)
3 Intermediate care and development of community hospitals	24 The home as a factor of inclusion and social wellbeing
4 Healthcare budget	25 Combating of gender violence
5 Recognition of the role of family caregiver in the social services, social-medical, and healthcare system	**D. Policies for citizens' participation and empowerment**
6 "Life Project", "Independent Living", and "After Us" programs	26 Methods for fostering empowerment and the participation of communities
7 Taking on the care of the patient and their family within the framework of the palliative treatment network	27 Health literacy
8 Promotion of health in prison, humanization of punishment, and reintegration of the persons doing criminal sentences	28 Exploitation of experiential knowledge and help among peers
B. Policies for the reduction of inequality and promotion of health	29 Civic participation and cooperation between the public system and third sector entities
9 Gender medicine	**E. Policies for the qualification and streamlining of services**
10 Actions to combat the social exclusion of persons in conditions of extreme poverty or risking marginalization	30 Updating of instruments and procedures for social-medical services
11 Equity in all policies: methods and instruments	31 Reorganization of childbirth assistance to improve the quality of care and increase safety for citizens and professionals
12 Support for the inclusion of newly arrived foreign persons	32 Promotion of the equity of access to healthcare services
13 Supplementary funds for services not covered by the Essential Care Levels (LEA)	33 Improvement of access and paths to emergency/urgency services
14 Promotion of equal opportunities and enhancement of gender, intergenerational, intercultural, and skill differences	34 Methods for innovating organizations and professional practices
15 Strengthening of the interventions in the first 1000 days of life, in particular in the family caregiving and services contexts	35 ICT – Information and communication technologies – as an instrument for a new e-welfare model
16 Support to parenthood	36 Consolidation and development of the Territorial Social Services (SST)
17 "Teen Project": integrated interventions for prevention, promotion of wellbeing, and care of pre-teens and teens	37 Qualification of the reception and treatment system for children, adolescents, and young adults with complex social-medical needs within the framework of protection and defense
18 Promotion of sexual health and reproduction in the fertile years and prevention of sterility	38 New regional vaccination schedule and activities for the support and improvement of vaccination coverage
19 Prevention and combating of pathological gambling	39 Essential levels of social services in the Emilia-Romagna region
20 Actions for active, healthy aging and protection of the fragility of the elderly	
21 Innovation of the network of services for the elderly within the framework of the FRNA: Regional Fund for Non-Self-Sufficiency	

Source: Regione Emilia-Romagna (2017)

Table 3. Assigned objectives of the general directorate of the Bologna Local Health Authority (AUSL)

Table 3. ASSIGNED OBJECTIVES OF THE GENERAL DIRECTORATE OF THE BOLOGNA LOCAL HEALTH AUTHORITY (AUSL)
ASSIGNED OBJECTIVES OF THE GENERAL DIRECTORATE OF THE BOLOGNA LOCAL HEALTH AUTHORITY (AUSL)
1. Objectives for health and the promotion of quality of care
1.1 Reorganization of hospital care
1.2 Consolidation of primary care, development of "health homes", hospital-territory integration
1.3 Facilitation of access to day hospital specialist services and hospitalization
1.4 Consolidation of taking charge of and pathways of continuity of care
1.5 Health prevention and promotion activities
1.6 Management of the demand and appropriateness of interventions in hospital, specialist, and pharmaceutical contexts
1.7 Quality, safety, and management of clinical risk
1.8 Social-medical integration
1.9 Research activities
2. Objectives of sustainability and management of services
2.1 Respect of the economic-financial balance and actions to rationalize and control spending
2.2 Development of administration, support, and logistic service integration processes in the various companies
2.3 Development of the ICT infrastructure supporting the simplification and improvement of service accessibility
2.4 Rationalization in the management of the building-technological wealth and investment management
2.5 Human resource management
2.6 Information flow formalities
2.7 Enhancement of human capital

Source: Giunta della Regione Emilia-Romagna (2015)

4. Discussion

The Emilia-Romagna Region has a consolidated approach to the protection of social issues. However in both its Social and Health Plan and its relationship with the AUSLs, it does not develop *ex ante* automatic instruments for monitoring the fundamental principles of the NHS in the implementation of policies and in particular for reorganizing services and controlling spending. It pays attention to the protection of equity [especially for poverty], but it does so by means of participatory or equity auditing instruments[3] or, at most, by using mixed consultative committees.

The individual citizen can protect himself in a defensive action after the changes have already gone into effect, by communicating with the Public Relations Office of the AUSL and in the second instance by asking to activate the Mixed Conciliatory Commission. In other words, actions external to the management process of the SSR and the AUSL.

3. A Health Equity Audit was applied to the breast care pathway (PDTA) of the AUSL of Bologna from 2012 (Agenzia sanitaria e sociale regionale della Regione Emilia-Romagna, 2017).

The tool for verification of the maintenance of the NHS principles remains the monitoring of the LEA by the Ministry of Health. It is an *ex post* instrument with indicators (*Table 4*) what do not specifically address each policy of reorganization of services or spending containment.

At the present time the last possibility for each citizen to protect himself is to appeal to the new rules of transparency for the Public Administrations (d.lgs. 33/2013 and d.lgs. 97/2016) and to the commitment of the National Anti-corruption Authority (Autorità Nazionale Anticorruzione, 2016).

Table 4. Essential Levels of Care – Definition of the set of indicators of the year 2015

No.	*Care level*	*Definition*	*Meaning*
1	Prevention	**1.1 Vaccination coverage in children at 24 months for basic cycle (3 doses) (polio, diphtheria, tetanus, hepatitis B, whooping cough, Hib)** **1.2 Vaccination coverage in children at 24 months for one dose of MMR vaccine against measles, mumps, and rubella** **1.3 Vaccination coverage for influenza in the elderly (≥ 65 years)**	*Main indicator for verification of the prevention activity for infective diseases on the population. The indicator distinguishes among the basic cycle vaccinations (3 doses), one MMR (measles, mumps rubella in childhood) vaccine, and influenza vaccine in the elderly.*
2	Prevention	**2. Proportion of persons who underwent a first-level screening test, in an organized program, for cervical, breast, and colorectal cancers**	*The objective of the indicator is to describe the activities of the organized screening programs and the adherence thereto by the eligible population. The intention is to provide an overall evaluation of the compliance with the "LEA" (Essential Care Levels) for all three screening programs.*
3	Prevention	**3.1 Per capita cost of collective care in the living and work environment**	*Brief indicator of the resources devoted by the Region to collective care activities in living and work environments.*
		3.2 Composite lifestyle indicator	*The indicator describes the respective changes, over time, of the prevalence of individuals with certain behaviors or lifestyles, as proxies of the outcome of the prevention and promotion of healthy lifestyles implemented by the Regions.*

4	Prevention, Protection in workplaces	**4. Percentage of units monitored out of the total to be monitored**	*Indicator established in the Pact for Health and Safety in the Workplace (Prime Minister's Decree of 17/12/2007), which reflects the monitoring activities carried out by the services of the ASL (Local Health Authority)Prevention Department for the protection of health in the workplace.*
5	Prevention, Animal health	**5.1 ANIMAL DISEASES TRANSMITTABLE TO HUMANS – percentage of breeding farms checked for bovine TB and trend of prevalence** **5.2 ANIMAL DISEASES TRANSMITTABLE TO HUMANS – percentage of breeding farms checked for ovine, caprine, bovine, and buffalo BRUCELLOSIS and, for the regions specified in the Ministerial Decree of 14/12/2006 et seq., the compliance with the rechecking times and with the times for reporting on the lab results in at least 80% of the cases, as well as the reduction of the prevalence in all the species** **5.3 ANIMAL REGISTRY – Checks on the animal population for animal and human health prevention: percentage of sheep and goat farms checked for the ovicaprine registry compared to the 3% envisaged by EC Regulation 1505/06**	*The indicators measure several animal health aspects that have a major impact on the health of citizens, with the aim of a direct and indirect monitoring of zoonoses and of a traceability of food-producing animals.*
6	Prevention, Food safety	**6.1 CONTAMINANTS IN FOODS OF ANIMAL ORIGIN – implementation of the National Plan for the Search for Residues ("PNR") of drugs, illegal substances, and contaminants in food products and their residues in foods of animal origin: percentage of the samples analyzed out of the total planned samples**	*The indicator measures the percentage of implementation by the regional governments of the National Plan for the search for residues of drugs and contaminants in foods of animal origin – Legislative Decree no. 158/06.*
		6.2 HEALTH CHECKS CONDUCTED ON THE PREMISES OF FOOD SELLING AND SERVING ACTIVITIES: sum of the values of the percentages of inspections of places (public and collective) that serve food, and sampling conducted at places (public and collective) that sell and serve food, out of the total of those planned, Articles 5 and 6 of the Presidential Decree of 14/07/95	*The indicator measures the percentages of the inspections and samplings conducted in places selling and serving food, compared to those envisaged by Articles 5 and 6 of the Presidential Decree of 14/07/95 (elements deducible by means of "form" A of the Ministerial Decree of 08/10/98), for the monitoring of the proper handling and storage of foods by said food sector operators.*

		6.3 CONTAMINANTS IN FOODS OF VEGETABLE ORIGIN – program for the search of plant protection product residues in foods of plant origin (Tables 1 and 2 of the Ministerial Decree of 23/12/1992); percentage of the samples envisaged whose results are made available for forwarding to the EFSA	*The indicator measures the percentage of implementation of the national program for monitoring residues of plant protection products (commonly called "pesticides") in foods of plant origin – fruit, vegetables, grains, oil, and wine – and the proper coverage for each category,*
7	District	**7.1 Standardized hospitalization rate (per 100,000 inhabitants) in the pediatric age group (< 18 years) for: asthma and gastroenteritis** **7.2 Standardized hospitalization rate (per 100,000 inhabitants) in the adult age group (≥ 18 years) for: complications (short- and long-term for diabetes), OCBP, and heart failure**	*Indirect hospital indicators that assess the ineffectiveness of the prevention and specialist services devoted to the treatment of certain pathologies, in the pediatric and adult age groups, respectively.*
8	District, elderly	**8. Percentage of elderly ≥ 65 years of age treated with integrated homecare**	*The indicator, calculated on the resident population over the age of 65, measures the taking charge of the elderly population by the integrated homecare services of the ASLs (Local Health Authorities). It takes into account the different organizational methods present in the Italian regions.*
9	District, elderly	**9.1 Number of equivalent beds for care to the elderly ≥ 65 years of age in residential structures per 1,000 resident senior citizens** **9.2 Number of beds for care to the elderly ≥ 65 years of age in residential structures per 1,000 resident senior citizens**	*The indicators assess both the quantity of equivalent beds (on the basis of the days of care provided) and of actual beds (supply network) available in the territorial residential structures with respect to the resident elderly population, and may be considered an indicator of the supply of residential territorial care.*
10	District, disabled	**10.1.1 Number of residential equivalent beds in structures that provide care to the disabled per 1,000 residents** **10.1.2 Number of semi-residential equivalent beds in structures that provide care to the disabled per 1,000 residents** **10.2.1 Number of beds in residential structures that provide care to the disabled per 1,000 residents** **10.2.2 Number of beds in semi-residential structures that provide care to the disabled per 1,000 residents**	*The indicators assess both the quantity of equivalent beds (on the basis of the days of care provided) and of actual beds (supply network) available in the residential and semi-residential structures that provide care to the disabled, with respect to the resident population, and may be considered an indicator of the supply of residential and semi-residential territorial care.*

11	District, terminally ill	**11. Existing hospice beds compared to the total number of deaths from tumors (per 100)**	*Indicator of the supply for residential care of terminal patients. It is in relation to the population that prevalently needs such care.*
12	District, pharmaceutical	**12. Percentage of annual consumption (expressed in DDD (Defined Daily Dose) of the drugs belonging to the PHT**	*The indicator makes it possible to measure the direct taking charge of assisted patients characterized by critical diagnoses and treatments and by the need for a periodic follow-up with the specialist structure, and by periodic scheduled accesses in order to ensure a greater appropriateness in the dispensing of these medicines.*
13	District, specialist	**13. Number of outpatient specialist magnetic resonance exams given per 100 residents**	*Indicator of specialist activity based on the number of magnetic resonance exams given with respect to the population. It takes into account both the possible lack of guarantee of the level of care, and the possible waste of resources due to inappropriateness.*
14	District, mental health	**14. Number of patients receiving care at the mental health departments per 1,000 residents**	*Indicator of healthcare activity provided to patients followed by mental health centers.*
15	Hospital	**15.1 Standardized hospitalization (ordinary and day) rate per 1,000 residents** **15.2 Day hospital admission rate for diagnostic purposes per 1,000 residents**	*Indicators of hospital demand and appropriateness of day hospital admissions*
		15.3 Medical type access rate (standardized by age) per 1,000 residents	*Indicator of hospital demand and appropriateness of day hospital admissions*
16	Hospital	**16. Percentage of hospitalizations with surgical DRG under the ordinary system compared to the total ordinary hospitalizations**	*Indicator of hospital care activity. Verifies the appropriate use of the hospital structure devoted mainly to surgery.*
17	Hospital	**17. Ratio between hospitalizations attributed to DRGs with a high risk of inappropriateness (Annex B of the 2010-2012 Pact for Health) and hospitalizations attributed to DRGs with no risk of inappropriateness under the ordinary system**	*Indicator of inappropriateness of the care setting. Is based on the list of the 108 DRGs with a high risk of inappropriateness if provided under the ordinary system as described in the Agreement of 3 December 2009.*
18	Hospital	**18. Percentage of primary Caesarian sections** **18.2 Percentage of extremely pre-term births which took place in places without a NICU**	*Indicators on the appropriate performance of primary Caesarian sections in Italy and on the access to intensive care for extremely pre-term infants, decisive for the survival and future quality of life of the baby.*

19	Hospital	**19. Percentage of patients (age 65+) with diagnoses of femoral neck fractures who are operated on within 2 days under the ordinary system**	*The indicator is included among the hospital care quality indicator selected by the OECD for comparisons. It assesses the taking charge of the healthcare organization and its response time to the need for care of patients with femoral fractures.*
21	Emergency	**21. Alarm-Target interval of the emergency vehicles (in minutes)**	*Innovative indicator of functionality and rapidity of the healthcare organization in charge of the territorial emergency system. In particular, it assesses the performance of the "118" emergency phone number service.*

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2017)

5. Conclusions

A National Health Service, that bases its existence on the nature of merit good of the individual health, may have difficulty making itself considered reliable by citizens-taxpayers, offering only participatory tools to protect its fundamental principles. Today the phenomena of discrimination and exit seem to be connected more with a discomfort experienced as individual than with a feeling of belonging to a specific group which is well organized for its own protection.

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3.

Universality, Equality and Equity in the Italian National Health Service: Highlighting Discrimination Phenomena in Accessing Health Services Using Institutional and Administrative Data[1]

1. Introduction

The Italian NHS must guarantee to all citizens, in conditions of equality, universal access to the equitable provision of health services.

In the current institutional framework of healthcare federalism, the central government has the responsibility to ensure these rights through a strong system of guarantees summarized in the Essential Levels of Care (LEAs), and at the same time the Regional Authorities have direct responsibility through their Local Health Authorities (AUSLs) for the implementation of government and expenditure for achieving the country's health objectives.

The monitoring of the LEA by the Ministry of Health (data available since 2001) it would be the tool for verification of the maintenance of the NHS principles, avoiding discrimination in accessing health services. It is an ex post instrument with indicators that do not specifically address each policy of reorganization of services or spending containment. But it is the only complete tool available to everyone and it is possible to read the regional indicators, highlighting the phenomena of non-access to NHS services, the groups that are affected, and the changes over time.

More in depth concerning the progressive changes in the offer of services for the early detection of breast cancer in the area of Bologna AUSL (poster at AEA Meeting 2017: Gatti, 2017), the data (2002-2016) from the Regional Health Service of Emilia-Romagna on the access to the mammographic services in the AUSLs of the region allow to present the results of a longitudinal analysis on the different paths for the early detection of breast

1. The paper was presented as a poster at the 2020 American Economic Association (AEA) Annual Meeting in San Diego (CA), January 03-05, 2020. The Author thanks Diego Cimarosa for research assistance.

cancer undertaken by the women in Bologna and in the other AUSLs in Emilia-Romagna after the solutions adopted after 2010 to deal with the problems of waiting lists and the control of spending for the services of early detection of breast cancer, redirecting the services toward the screening of public health.

I present two ways to achieve information on discrimination in accessing health services in the Italian NHS:

- analyzing the data of the monitoring of the Essential Levels of Care;
- reconstructing the access choices from the administrative data of the regional health services.

2. Highlighting Discrimination in Accessing Health Services Using Institutional Data

I present here a reflection on the phenomena of non-access to NHS services and on the groups that are affected from the results of the monitoring of the Essential Level of Care (LEA) in each Italian region made by the Ministry of Health for the year 2017 and published in February 2019 (Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI, 2019).

In the 19 regions and 2 autonomous provinces data was collected related to 21 indicators with the aim of knowing the provision of the Essential Levels of Care on the national territory and highlighting any critical issues[2].

In 2017 the most critical issues were for the indicators "1.2 Vaccination coverage in children at 24 months for one dose of MMR vaccine against measles, mumps, and rubella" (*Figure 1*), "1.3 Vaccination coverage for influenza in the elderly (≥ 65 years)" (*Figure 2*), "9.2 Number of beds for the care of the elderly ≥ 65 years of age in residential structures for 1,000 resident senior citizens" (*Figure 3*) and "18.1.2 Percentage of primary Caesarian sections in maternity department of level I or anyway with < 1000 births".

These critical issues are related to specific groups: 1.2 children under 5 years of age, 1.3 elderly over 65, 9.2 elderly over 65, 18.1.2 mothers and newborns.

The regions and autonomous provinces reported in purple and red are the most critical point. In purple we have the regions that are improving the indicator, but they have a strong deviation from the health protection

2. The complete set of indicators for the monitoring of the Essential Levels of Care for the year 2017 is presented in *Appendix 1*.

objective. In red we have the regions that are in strong deviation and are not improving and therefore they maintain or aggravate the discrimination/ disengagement in the protection of health for mothers, newborns, children under 5, and the elderly. In fact the other indicators of the monitoring of the LEAs, many of which concerning the population as a whole, more frequently reach or come closer, progressively improving, the set objectives.

For the LEA indicator closest to the themes of changes in the early detection of breast cancer "2. Proportion of persons who underwent a first-level screening test, in an organized program, for cervical, breast, and colorectal cancers" (*Figure 4*) the results are extremely divergent between North and South Italy. The North appears to be fulfilling and the South presents a deviation from its objectives not acceptable. It should be noted that the indicator should be disaggregated to better understand the situation of the three types of screening programs and that an indicator should be added in the Care level "District, specialist" concerning the timing of the delivery of mammograms as is done for magnetic resonance exams with the indicator "13. Number of outpatient specialist magnetic resonance exams given per 100 residents".

Figure 1. Indicator 1.2: Vaccination coverage in children at 24 months for one dose of MMR vaccine against measles, mumps, and rubella

Regione	2015	2016	2017
Piemonte	88,7	91,1	94,7
Valle d'Aosta	88,1	83,1	90,3
Lombardia	90,3	93,3	93,9
P.A. Bolzano	68,8	67,5	71,8
P.A. Trento	84,5	87,3	91,6
Veneto	87,1	89,1	92,3
Friuli Venezia Giulia	81,9	83,2	86,5
Liguria	81,4	82,1	90,8
Emilia-Romagna	87,1	87,4	93,4
Toscana	88,7	89,3	93,5
Umbria	87,5	89,4	94,5
Marche	79,9	83,0	88,2
Lazio	84,5	87,9	95,3
Abruzzo	84,2	87,6	89,2
Molise	77,4	73,5	90,5
Campania	80,8	83,8	92,0
Puglia	84,2	85,9	91,1
Basilicata	90,3	90,6	92,9
Calabria	84,2	86,5	92,8
Sicilia	79,2	81,1	85,6
Sardegna	87,7	90,3	93,0

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0
>= 95,0 %	92 %- 94,9 %	< 92,0 % e in aumento	< 92,0 % e non in aumento

Source: Ministero della Salute (2019)

Figure 2. Indicator 1.3: Vaccination coverage for influenza in the elderly (≥ 65 years)

Regione	2015	2016	2017
Piemonte	46,9	48,2	47,9
Valle d'Aosta	42,2	44,4	44,1
Lombardia	47,7	47,5	47,7
P.A. Bolzano	37,8	37,3	35,3
P.A. Trento	50,2	53,2	53,5
Veneto	54,0	55,8	55,1
Friuli Venezia Giulia	51,1	54,1	55,7
Liguria	45,7	47,3	50,1
Emilia-Romagna	51,9	52,7	53,3
Toscana	52,2	54,8	55,3
Umbria	62,8	63,1	63,4
Marche	50,1	51,0	50,0
Lazio	51,0	51,5	51,8
Abruzzo	45,7	48,6	49,1
Molise	43,8	52,4	61,0
Campania	52,8	56,7	57,4
Puglia	50,8	57,4	59,4
Basilicata	47,9	49,8	53,2
Calabria	51,7	57,9	61,2
Sicilia	49,5	52,9	54,3
Sardegna	40,0	41,6	44,0

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0
>=75%	60% - 74,9%	<60% e in aumento	<60% e non in aumento

Source: Ministero della Salute (2019)

Figure 3. Indicator 9.2: Number of beds for care to the elderly ≥ 65 years of age in residential structures per 1,000 resident senior citizens

Regione	2015	2016	2017
Piemonte	25,85	26,06	27,04
Valle d'Aosta	0,35	0,34	-
Lombardia	27,08	26,64	26,78
P.A. Bolzano	38,01	38,03	43,02
P.A. Trento	40,76	40,20	40,02
Veneto	28,13	28,00	27,71
Friuli Venezia Giulia	24,83	24,32	24,97
Liguria	14,51	14,49	14,61
Emilia-Romagna	15,93	15,75	15,57
Toscana	12,62	12,46	13,38
Umbria	10,18	10,32	10,46
Marche	11,41	12,02	14,15
Lazio	5,75	5,44	5,98
Abruzzo	5,66	5,70	5,60
Molise	0,55	0,57	0,81
Campania	1,25	1,37	1,38
Puglia	5,71	5,03	5,16
Basilicata	1,31	1,38	1,98
Calabria	6,22	5,62	5,91
Sicilia	1,49	1,47	1,41
Sardegna	2,04	2,17	2,21

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0	Validità del dato -1
>=10	6 – 9,9	< 6 e in aumento	< 6 e non in aumento	Flusso insufficiente per

Source: Ministero della Salute (2019)

Figure 4. Indicator 2: Proportion of persons who underwent a first-level screening test, in an organized program, for cervical, breast, and colorectal cancers

Regione	2015	2016	2017
Piemonte	7,0	11,0	11,0
Valle d'Aosta	15,0	15,0	15,0
Lombardia	11,0	9,0	9,0
P.A. Bolzano	9,0	9,0	9,0
P.A. Trento	13,0	13,0	15,0
Veneto	15,0	15,0	15,0
Friuli Venezia Giulia	15,0	15,0	15,0
Liguria	9,0	9,0	9,0
Emilia-Romagna	15,0	15,0	15,0
Toscana	13,0	13,0	13,0
Umbria	13,0	13,0	11,0
Marche	9,0	9,0	9,0
Lazio	5,0	7,0	9,0
Abruzzo	7,0	9,0	9,0
Molise	7,0	7,0	9,0
Campania	3,0	3,0	3,0
Puglia	2,0	2,0	4,0
Basilicata	11,0	9,0	9,0
Calabria	1,0	2,0	2,0
Sicilia	3,0	3,0	3,0
Sardegna	5,0	5,0	3,0

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0
Score >=9	Score 7 - 8	Score 5 - 6	Score 0 – 4

Source: Ministero della Salute (2019)

3. Highlighting Discrimination in Accessing Health Services Using Administrative Data

In this second part, I present an evaluation of the possible effects of discrimination deriving from reorganization measures of the services of early detection of breast cancer that have led in Emilia-Romagna since 2010, and in Bologna in particular, to redirecting the services toward the screening of public health (poster at AEA Meeting 2017). In this case the approach used is the one presented as a last possibility for the citizen to protect himself by appealing to the new rules of transparency for the Public Administrations (Legislative Decree 33/2013 and Legislative Decree 97/2016) and to the commitment of the National Anti-corruption Authority in the poster at AEA Meeting 2018.

As a citizen it was possible, according to these new transparency rules, to request and obtain the data (2002-2016) from the Regional Health Service of Emilia-Romagna on the access to the mammographic services in the AUSLs of the region, therefore to be able to do a personal assessment of different

paths for the early detection of breast cancer undertaken by the women in Bologna and in the other AUSLs in the Emilia-Romagna after the solutions adopted after 2010 to deal with the problems of waiting lists and the control of spending for the services. Now I am able to evaluate the repercussions suffered by women with regards to this provision and if these repercussions can be traced to a phenomenon of discrimination, taking into account that the right to access mammogram as an outpatient specialist service remains (poster at AEA Meeting 2017: Gatti, 2017).

4. Methods and Materials

From the ASA database (Assistenza Specialistica Ambulatoriale – Outpatient Specialized Assistance) the bilateral mammographic services related to women resident in Emilia Romagna who carried out the service in an Emilia Romagna facility under the Italian NHS regime were extracted.

In the received file (about 5,000,000 bilateral mammographic service records) the following fields are present:

- YEAR: identifies the year in which the service was performed;
- COD_AZI: identifies the Local Health Authority of territorial location of the supplying structure;
- COD_STR1: identifies the code of the supplying structure through STS11 coding;
- COD_STR: identifies the code of the supplying structure and the name at 2016 (not all the structures of the past years have a name, for example the structures closed, which is why the code was also given);
- USL_RES: identifies the Local Health Authorities (AUSL) of residence of the client;
- ID_PAZ: numerically identifies a patient;
- PRESTAZ: identifies the code and the name of the bilateral mammogram;
- DT_EROG: identifies the delivery date;
- ETA: identifies the age of the patient at the time the service is provided;
- Screen: s for services performed in screening, n for services performed in another way.

The ASA database has existed since 2002 and entered into force after 2005. The year 2016 was delivered not yet complete because there is no the last data sending.

The statistical methodology adopted for the analysis was the Multiple Correspondence Analysis (MCA), a multivariate exploratory statistical

analysis technique aimed at analyzing the existence of association patterns between qualitative variables. The processing was done with the SAS statistical software and the variables taken into consideration for each patient were: screening (Yes or No) patient_age, description_usl_residence (8 AUSLs of residence in the Emilia-Romagna region); where anno_mammografia has been chosen from time to time as 2002, 2010 and 2016 and eta_paziente has been considered between 45 and 74 (we have delimited the analysis to women potentially involved in population screening and therefore those between 45 and 74 years).

5. Results

The results of the application of the MCA[3] to the data on the provision of bilateral mammograms, in screening or not in screening, by the Regional Health Service show an inertia explained for the first three axes not very high (2002: 10.42%; 2010: 9.40%; 2016: 10.20%), but certainly allow to clearly outline the evolution of the choices of women of the different AUSLs of the region over the 15 years, of which the database provides us information. In particular they allow to outline the changes in the choices after 2010, the year preceding the heavy changes of the new regional strategy for improving access to outpatient specialist services, in the application of Regional Council Decree 1532/2006, "Regional plan for the reduction of waiting lists". The plan includes measures designed to reduce waiting lists for mammographic exams, while the rules for scheduled access (screening programs) and spontaneous access to mammograms were changed.

Here I present the results of the MCA through the graphs relating to the first two axes produced for the years 2002 (first year available for the database), 2010 (year preceding the heavy changes in the policies for access to the early detection of breast cancer) and 2016 (which, although lacking of the latest data, allows us to fully understand the changes in women's choices) (*Figure 5*).

The first axis in comparison with the second in 2002 is absolutely prevalent in explaining the total inertia (4.65% against 2.93%). In 2010 less (3.45% against 3.01%). In 2016, the first axis is still clearly prevalent (4.34% against 2.96%)

In 2002, the first axis is characterized in the positive semi-axis by the association between NO screening and Modena and therefore with the years

3. A complete presentation of the results (decomposition of the inertia, partial contributions to inertia) of this application of the Multiple Correspondence Analysis is provided in the tables of *Appendix 2*.

prior to the 50 and following the 70 (because until 2010 the mammographic screening program was open only from 50 to 69 years), and then by the Si screening and Romagna association in the negative semi-axis. In the second axis the strong association is between Reggio Emilia and 50 years in the negative semi-axis, followed by the association between Romagna and 70 years in the positive semi-axis.

In 2010 the first axis is characterized by the strong association between NO screening and Bologna in the positive semi-axis and then by the SI screening with Reggio Emilia and Piacenza in the negative semi-axis. In the second axis the strong association is between Modena and the 57 and 59 years in the positive semi-axis and in the negative semi-axis the association is between Reggio Emilia and Piacenza and the years 49 and then 46, 48 and 47.

In 2016 things change radically. In the first axis the strong association is in the positive semi-axis between NO screening and Piacenza, firstly, and then Parma and therefore in the negative semi-axis the association is between SI screening and 46 years and then Reggio Emilia and Romagna. In the second axis the strong association is between Reggio Emilia and 50 years in the negative semi-axis, then in the positive semi-axis the association is between Ferrara and 51 years.

Over the years, the No screening choice has changed from being the relatively standard choice with a contribution to the inertia of the first axis of 11.69% against a contribution of 28.95% of the SI screening in 2002, to be already in 2010 the choice that distinguishes with 34.40% contribution to the first axis against 15.84% of SI screening. In 2016, NO screening is the exception choice with 40.13% of contribution to the first axis compared to 9.28% of SI screening.

In this context we can try to identify the evolution of early detection for breast cancer choices in Bologna. In 2002, Bologna was associated with NO screening, although not as strongly as other AUSLs in the region. In 2010, Bologna is strongly associated with NO screening. In 2016, Bologna is associated with SI screening, although not as strongly as other AUSLs in the region. Bologna and the SI screening are positioned close together and at the intersection of the axes. In short, in the position of undifferentiation and are surrounded by women of the younger age who have not known within the Regional Health Service the reality of early detection individually managed and with the presence of the breast pathologist, and probably do not have the complete awareness that it is still their right to access the mammographic services via spontaneous access with the prescription of their general practitioner with the presence of the breast pathologist (Gatti, 2017).

It seems that older women have not completely abandoned the spontaneous access to mammographic services via the general practitioner's prescription.

Some AUSLs (Parma and Piacenza) are still characterized by spontaneous access to mammographic services via the general practitioner's prescription.

The study of the third axis can provide more information about the peculiarities of the Bologna "case" in particular for the years 2002 and 2016.

The PASSI epidemiological surveillance survey of the 2019 on the breast cancer screening in the Emilia-Romagna region underlines how in recent years the acceptance of women to pass to population screening, abandoning the individual path of spontaneous access, is justified by economic difficulties and sometimes even population screening is abandoned due to the decline in Emilia-Romagna and in the North of the practice of the advices from doctors and health professionals in general, "which are one of the ways to erode the coverage gap". The population screening is abandoned also due to the non-arrival of the invitation letter (Carrozzi, 2019). Some of these effects were predicted in Gatti, 2017.

6. Conclusions

Traditional tools for the monitoring of the Essential Levels of Care (LEA) and new tools, such as the access to documents according to the 2013 law on administrative transparency which gives individuals a new role of control, have highlighted differences in behavior or recognition of rights regards to certain groups within the National Health Service and specifically in the provision of services for the early detection of breast cancer in Bologna. Both the monitoring of the LEAs and the access to the documents have a sanction implication. In the first case it is implemented directly by the State, in the second case it is implemented by citizens or citizens' associations. The process in the case of Essential Levels of Care is probably more linear and tested. For single citizens or new associations there may be a path to report cases of discrimination to mixed consultative committees of the AUSLs or they can recourse to judicial channels. Again the presence of a supplementary guarantee instrument, such as an independent regulatory agency to safeguard the fundamental principles of Universality, Equality and Equity of the National Health Service in Italy, could be for citizens who want to report cases of discrimination a safe and more agile Institution of reference.

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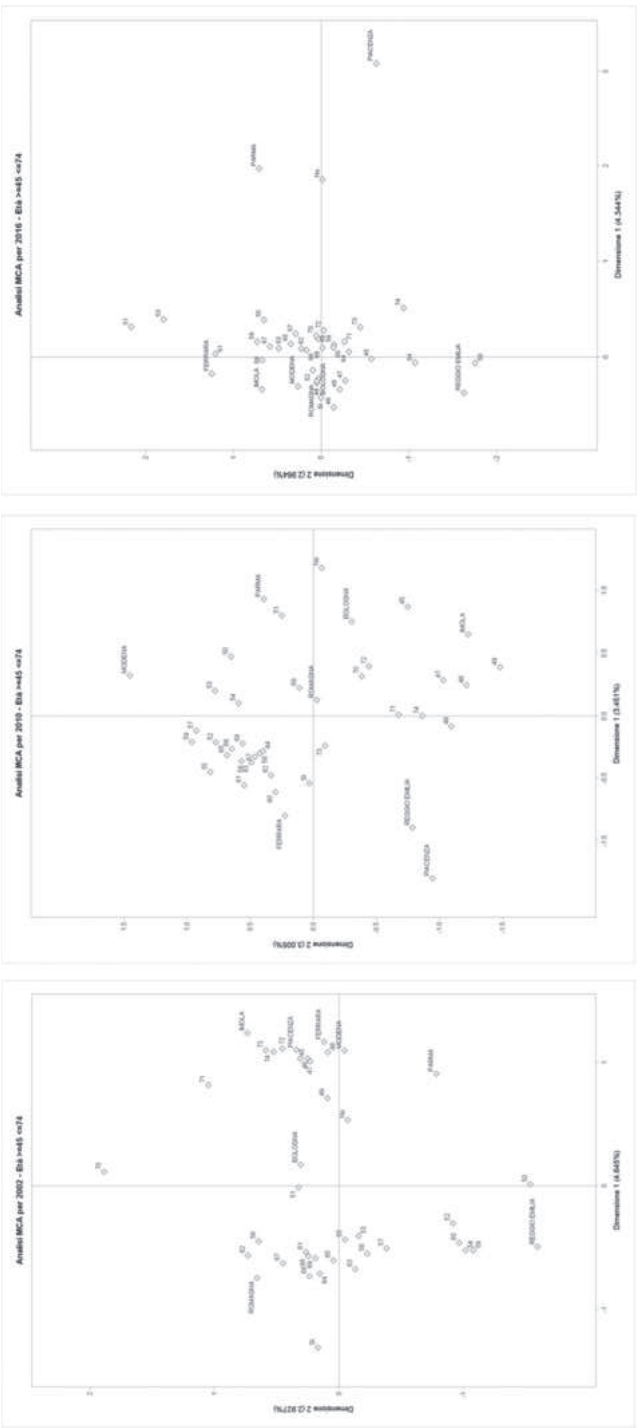

Figure 5. MCA. Representation of the first two axes (years 2002, 2010, 2016)

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Appendix 1

Table A1.1. Essential Levels of Care – Definition of the set of indicators of the year 2017

No.	*Care level*	*Definition*	*Meaning*
1	Prevention	**1.1 Vaccination coverage in children at 24 months for basic cycle (3 doses) (polio, diphtheria, tetanus, hepatitis B, whooping cough, Hib)** **1.2 Vaccination coverage in children at 24 months for one dose of MMR vaccine against measles, mumps, and rubella** **1.3 Vaccination coverage for influenza in the elderly (≥ 65 years)**	*Main indicator for verification of the prevention activity for infective diseases on the population. The indicator distinguishes among the basic cycle vaccinations (3 doses), one MMR (measles, mumps rubella inù childhood) vaccine, and influenza vaccine in the elderly.*
2	Prevention	**2. Proportion of persons who underwent a first-level screening test, in an organized program, for cervical, breast, and colorectal cancers**	*The objective of the indicator is to describe the activities of the organized screening programs and the adherence thereto by the eligible population. The intention is to provide an overall evaluation of the compliance with the "LEA" (Essential Care Levels) for all three screening programs.*
3	Prevention	**3.2 Composite lifestyle indicator**	*The indicator describes the respective changes, over time, of the prevalence of individuals with certain behaviors or lifestyles, as proxies of the outcome of the prevention and promotion of healthy lifestyles implemented by the Regions.*
4	Prevention, Protection in workplaces	**4. Percentage of units monitored out of the total to be monitored**	*Indicator established in the Pact for Health and Safety in the Workplace (Prime Minister's Decree of 17/12/2007), which reflects the monitoring activities carried out by the services of the ASL (Local Health Authority)Prevention Department for the protection of health in the workplace.*
5	Prevention, Animal health	**5.1 ANIMAL DISEASES TRANSMITTABLE TO HUMANS – percentage of breeding farms checked for bovine TB and trend of prevalence**	*The indicators measure several animal health aspects that have a major impact on the health of citizens, with the aim of a direct and indirect monitoring of zoonoses and of a traceability of food-producing animals.*

		5.2 ANIMAL DISEASES TRANSMITTABLE TO HUMANS – percentage of breeding farms checked for ovine, caprine, bovine, and buffalo BRUCELLOSIS and, for the regions specified in the Ministerial Decree of 14/12/2006 et seq., the compliance with the rechecking times and with the times for reporting on the lab results in at least 80% of the cases, as well as the reduction of the prevalence in all the species	
		5.3 ANIMAL REGISTRY – Checks on the animal population for animal and human health prevention: percentage of sheep and goat farms checked for the ovicaprine registry compared to the 3% envisaged by EC Regulation 1505/06	
6	Prevention, Food safety	**6.1 CONTAMINANTS IN FOODS OF ANIMAL ORIGIN – implementation of the National Plan for the Search for Residues ("PNR") of drugs, illegal substances, and contaminants in food products and their residues in foods of animal origin: percentage of the samples analyzed out of the total planned samples**	*The indicator measures the percentage of implementation by the regional governments of the National Plan for the search for residues of drugs and contaminants in foods of animal origin – Legislative Decree no. 158/06.*
		6.2 HEALTH CHECKS CONDUCTED ON THE PREMISES OF FOOD SELLING AND SERVING ACTIVITIES: sum of the values of the percentages of inspections of places (public and collective) that serve food, and sampling conducted at places (public and collective) that sell and serve food, out of the total of those planned, Articles 5 and 6 of the Presidential Decree of 14/07/95	*The indicator measures the percentages of the inspections and samplings conducted in places selling and serving food, compared to those envisaged by Articles 5 and 6 of the Presidential Decree of 14/07/95 (elements deducible by means of "form" A of the Ministerial Decree of 08/10/98), for the monitoring of the proper handling and storage of foods by said food sector operators.*
		6.2 HEALTH CHECKS CONDUCTED ON THE PREMISES OF FOOD SELLING AND SERVING ACTIVITIES: sum of the values of the percentages of inspections of places (public and collective) that serve food, and sampling conducted at places (public and collective) that sell and serve food, out of the total of those planned, Articles 5 and 6 of the Presidential Decree of 14/07/95	*The indicator measures the percentages of the inspections and samplings conducted in places selling and serving food, compared to those envisaged by Articles 5 and 6 of the Presidential Decree of 14/07/95 (elements deducible by means of "form" A of the Ministerial Decree of 08/10/98), for the monitoring of the proper handling and storage of foods by said food sector operators.*

		6.3 CONTAMINANTS IN FOODS OF VEGETABLE ORIGIN – program for the search of plant protection product residues in foods of plant origin (Tables 1 and 2 of the Ministerial Decree of 23/12/1992); percentage of the samples envisaged whose results are made available for forwarding to the EFSA	*The indicator measures the percentage of implementation of the national program for monitoring residues of plant protection products (commonly called "pesticides") in foods of plant origin – fruit, vegetables, grains, oil, and wine – and the proper coverage for each category,*
7	District	**7.1 Standardized hospitalization rate (per 100,000 inhabitants) in the pediatric age group (< 18 years) for: asthma and gastroenteritis** **7.2 Standardized hospitalization rate (per 100,000 inhabitants) in the adult age group (≥ 18 years) for: complications (short- and long-term for diabetes), OCBP, and heart failure**	*Indirect hospital indicators that assess the ineffectiveness of the prevention and specialist services devoted to the treatment of certain pathologies, in the pediatric and adult age groups, respectively.*
8	District, elderly	**8. Percentage of elderly ≥ 65 years of age treated with integrated homecare**	*The indicator, calculated on the resident population over the age of 65, measures the taking charge of the elderly population by the integrated homecare services of the ASLs (Local Health Authorities). It takes into account the different organizational methods present in the Italian regions.*
9	District, elderly	**9.1 Number of equivalent beds for care to the elderly ≥ 65 years of age in residential structures per 1,000 resident senior citizens** **9.2 Number of beds for care to the elderly ≥ 65 years of age in residential structures per 1,000 resident senior citizens**	*The indicators assess both the quantity of equivalent beds (on the basis of the days of care provided) and of actual beds (supply network) available in the territorial residential structures with respect to the resident elderly population, and may be considered an indicator of the supply of residential territorial care.*
10	District, disabled	**10.1.1 Number of residential equivalent beds in structures that provide care to the disabled per 1,000 residents** **10.1.2 Number of semi-residential equivalent beds in structures that provide care to the disabled per 1,000 residents** **10.2.1 Number of beds in residential structures that provide care to the disabled per 1,000 residents** **10.2.2 Number of beds in semi-residential structures that provide care to the disabled per 1,000 residents**	*The indicators assess both the quantity of equivalent beds (on the basis of the days of care provided) and of actual beds (supply network) available in the residential and semi-residential structures that provide care to the disabled, with respect to the resident population, and may be considered an indicator of the supply of residential and semi-residential territorial care.*

11	District, terminally ill	**11. Existing hospice beds compared to the total number of deaths from tumors (per 100)**	*Indicator of the supply for residential care of terminal patients. It is in relation to the population that prevalently needs such care.*
12	District, pharmaceutical	**12. Percentage of annual consumption (expressed in DDD (Defined Daily Dose) of the drugs belonging to the PHT**	*The indicator makes it possible to measure the direct taking charge of assisted patients characterized by critical diagnoses and treatments and by the need for a periodic follow-up with the specialist structure, and by periodic scheduled accesses in order to ensure a greater appropriateness in the dispensing of these medicines.*
13	District, specialist	**13. Number of outpatient specialist magnetic resonance exams given per 100 residents**	*Indicator of specialist activity based on the number of magnetic resonance exams given with respect to the population. It takes into account both the possible lack of guarantee of the level of care, and the possible waste of resources due to inappropriateness.*
14	District, mental health	**14. Number of patients receiving care at the mental health departments per 1,000 residents**	*Indicator of healthcare activity provided to patients followed by mental health centers.*
15	Hospital	**15.1 Standardized hospitalization (ordinary and day) rate per 1,000 residents** **15.2 Day hospital admission rate for diagnostic purposes per 1,000 residents**	*Indicators of hospital demand and appropriateness of day hospital admissions*
		15.3 Medical type access rate (standardized by age) per 1,000 residents	*Indicator of hospital demand and appropriateness of day hospital admissions*
17	Hospital	**17. Ratio between hospitalizations attributed to DRGs with a high risk of inappropriateness (Annex B of the 2010-2012 Pact for Health) and hospitalizations attributed to DRGs with no risk of inappropriateness under the ordinary system**	*Indicator of inappropriateness of the care setting. Is based on the list of the 108 DRGs with a high risk of inappropriateness if provided under the ordinary system as described in the Agreement of 3 December 2009.*
18	Hospital	**18.1.1 Percentage of primary Caesarian sections in maternity department of level II or anyway with ≥1000 births** **18.1.2 Percentage of primary Caesarian sections in maternity department of level I or anyway with <1000 births** **18.2 Percentage of extremely pre-term births which took place in places without a NICU**	*Indicators on the appropriate performance of primary Caesarian sections in Italy and on the access to intensive care for extremely pre-term infants, decisive for the survival and future quality of life of the baby.*

19	Hospital	**19. Percentage of patients (age 65+) with diagnoses of femoral neck fractures who are operated on within 2 days under the ordinary system**	*The indicator is included among the hospital care quality indicator selected by the OECD for comparisons. It assesses the taking charge of the healthcare organization and its response time to the need for care of patients with femoral fractures.*
21	Emergency	**21. Alarm-Target interval of the emergency vehicles (in minutes)**	*Innovative indicator of functionality and rapidity of the healthcare organization in charge of the territorial emergency system. In particular, it assesses the performance of the "118" emergency phone number service.*

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2019)

Appendix 2

Table A2.1. Analisi MCA per 2002 (Età ≥ 45 ≤ 74, Scomposizione dell'inerzia e del chi-quadrato)

Valore singolare	Inerzia principale	Chi-quadrato	Percentuale	Percentuale cumulativa
0.75691	0.57291	212175	4.65	4.65
0.60088	0.36106	133716	2.93	7.57
0.59288	0.35151	130179	2.85	10.42
0.58636	0.34382	127333	2.79	13.21
0.58433	0.34144	126452	2.77	15.98
0.58218	0.33893	125521	2.75	18.73
0.58081	0.33734	124933	2.74	21.46
0.57747	0.33347	123498	2.70	24.17
0.57735	0.33333	123448	2.70	26.87
0.57735	0.33333	123448	2.70	29.57
0.57735	0.33333	123448	2.70	32.27
0.57735	0.33333	123448	2.70	34.98
0.57735	0.33333	123448	2.70	37.68
0.57735	0.33333	123448	2.70	40.38
0.57735	0.33333	123448	2.70	43.09
0.57735	0.33333	123448	2.70	45.79
0.57735	0.33333	123448	2.70	48.49
0.57735	0.33333	123448	2.70	51.19
0.57735	0.33333	123448	2.70	53.90
0.57735	0.33333	123448	2.70	56.60
0.57735	0.33333	123448	2.70	59.30
0.57735	0.33333	123448	2.70	62.00
0.57735	0.33333	123448	2.70	64.71
0.57735	0.33333	123448	2.70	67.41
0.57735	0.33333	123448	2.70	70.11
0.57735	0.33333	123448	2.70	72.81
0.57735	0.33333	123448	2.70	75.52
0.57735	0.33333	123448	2.70	78.22
0.57735	0.33333	123448	2.70	80.92
0.57392	0.32939	121986	2.67	83.59
0.57249	0.32775	121380	2.66	86.25
0.57070	0.32569	120619	2.64	88.89
0.56917	0.32396	119975	2.63	91.52
0.56576	0.32008	118540	2.60	94.11
0.55897	0.31245	115712	2.53	96.65
0.50104	0.25104	92973	2.04	98.68
0.40310	0.16249	60178	1.32	100.00
	12.3333	4567579	100.00	

Table A2.2. Analisi MCA per 2002 (Età ≥45 ≤74, Contributi parziali all'inerzia per i punti di colonna)

	Dim1	*Dim2*	*Dim3*
No	0.1169	0.0031	0.0005
Sì	0.2895	0.0078	0.0012
45	0.0293	0.0028	0.0188
46	0.0292	0.0042	0.0340
47	0.0284	0.0024	0.0313
48	0.0319	0.0003	0.0324
49	0.0150	0.0004	0.0089
50	0.0000	0.1048	0.0000
51	0.0000	0.0035	0.0009
52	0.0021	0.0295	0.0007
53	0.0040	0.0009	0.0058
54	0.0066	0.0392	0.0048
55	0.0043	0.0001	0.0000
56	0.0038	0.0126	0.0003
57	0.0045	0.0040	0.0019
58	0.0057	0.0015	0.0205
59	0.0049	0.0328	0.0004
60	0.0037	0.0249	0.0017
61	0.0050	0.0019	0.0010
62	0.0056	0.0147	0.0043
63	0.0081	0.0005	0.0039
64	0.0088	0.0007	0.0006
65	0.0059	0.0001	0.0388
66	0.0054	0.0016	0.0291
67	0.0069	0.0056	0.0017
68	0.0098	0.0016	0.0002
69	0.0055	0.0009	0.0000
70	0.0002	0.0782	0.0001
71	0.0083	0.0219	0.0785
72	0.0137	0.0037	0.0376
73	0.0118	0.0054	0.0577
74	0.0108	0.0040	0.0570
BOLOGNA	0.0041	0.0216	0.2735
FERRARA	0.0426	0.0007	0.0029
IMOLA	0.0149	0.0083	0.0165
MODENA	0.0841	0.0002	0.1369
PARMA	0.0279	0.0328	0.0292
PIACENZA	0.0108	0.0017	0.0025
REGGIO EMILIA	0.0238	0.3881	0.0001
ROMAGNA	0.1063	0.1308	0.0637

Table A2.3. Analisi MCA per 2010 (Età ≥45 ≤74, Scomposizione dell'inerzia e del chi-quadrato)

Valore singolare	Inerzia principale	Chi-quadrato	Percentuale	Percentuale cumulativa
0.65243	0.42566	441215	3.45	3.45
0.60882	0.37066	384206	3.01	6.46
0.60211	0.36253	375776	2.94	9.40
0.59787	0.35745	370508	2.90	12.29
0.59353	0.35228	365152	2.86	15.15
0.58961	0.34764	360344	2.82	17.97
0.58646	0.34393	356499	2.79	20.76
0.58342	0.34038	352819	2.76	23.52
0.57735	0.33333	345511	2.70	26.22
0.57735	0.33333	345511	2.70	28.92
0.57735	0.33333	345511	2.70	31.63
0.57735	0.33333	345511	2.70	34.33
0.57735	0.33333	345511	2.70	37.03
0.57735	0.33333	345511	2.70	39.73
0.57735	0.33333	345511	2.70	42.44
0.57735	0.33333	345511	2.70	45.14
0.57735	0.33333	345511	2.70	47.84
0.57735	0.33333	345511	2.70	50.55
0.57735	0.33333	345511	2.70	53.25
0.57735	0.33333	345511	2.70	55.95
0.57735	0.33333	345511	2.70	58.65
0.57735	0.33333	345511	2.70	61.36
0.57735	0.33333	345511	2.70	64.06
0.57735	0.33333	345511	2.70	66.76
0.57735	0.33333	345511	2.70	69.46
0.57735	0.33333	345511	2.70	72.17
0.57735	0.33333	345511	2.70	74.87
0.57735	0.33333	345511	2.70	77.57
0.57735	0.33333	345511	2.70	80.27
0.57179	0.32695	338893	2.65	82.93
0.56918	0.32396	335799	2.63	85.55
0.56595	0.32029	331995	2.60	88.15
0.56346	0.31748	329082	2.57	90.72
0.55670	0.30992	321240	2.51	93.24
0.55373	0.30662	317822	2.49	95.72
0.54904	0.30144	312452	2.44	98.17
0.47551	0.22611	234373	1.83	100.00
	12.3333	1.278E7	100.00	

Table A2.4. Analisi MCA per 2010 (Età ≥45 ≤74, Contributi parziali all'inerzia per i punti di colonna)

	Dim1	*Dim2*	*Dim3*
No	0.3440	0.0012	0.0015
Sì	0.1584	0.0006	0.0007
45	0.0286	0.0241	0.0519
46	0.0025	0.0693	0.0001
47	0.0032	0.0482	0.0003
48	0.0003	0.0566	0.0015
49	0.0054	0.0887	0.0746
50	0.0077	0.0169	0.0098
51	0.0155	0.0017	0.0005
52	0.0014	0.0212	0.0146
53	0.0009	0.0162	0.0073
54	0.0003	0.0104	0.0223
55	0.0050	0.0185	0.0366
56	0.0032	0.0092	0.0002
57	0.0003	0.0212	0.0008
58	0.0021	0.0049	0.0144
59	0.0010	0.0239	0.0014
60	0.0096	0.0026	0.0000
61	0.0080	0.0088	0.0107
62	0.0059	0.0033	0.0095
63	0.0035	0.0070	0.0076
64	0.0017	0.0039	0.0040
65	0.0018	0.0100	0.0079
66	0.0014	0.0097	0.0092
67	0.0021	0.0050	0.0171
68	0.0010	0.0071	0.0149
69	0.0009	0.0003	0.0074
70	0.0020	0.0034	0.0047
71	0.0000	0.0127	0.0513
72	0.0032	0.0046	0.0707
73	0.0014	0.0002	0.0393
74	0.0000	0.0191	0.0240
BOLOGNA	0.0824	0.0154	0.0010
FERRARA	0.0561	0.0051	0.2309
IMOLA	0.0085	0.0347	0.0105
MODENA	0.0118	0.2779	0.0149
PARMA	0.0424	0.0087	0.0192
PIACENZA	0.0893	0.0535	0.0180
REGGIO EMILIA	0.0837	0.0737	0.1830
ROMAGNA	0.0034	0.0002	0.0056

Table A2.5. Analisi MCA per 2016 (Età ≥45 ≤74, Scomposizione dell'inerzia e del chi-quadrato)

Valore singolare	Inerzia principale	Chi-quadrato	Percentuale	Percentuale cumulativa
0.73200	0.53582	612831	4.34	4.34
0.60466	0.36561	418161	2.96	7.31
0.59683	0.35620	407400	2.89	10.20
0.59549	0.35461	405575	2.88	13.07
0.59083	0.34908	399246	2.83	15.90
0.58679	0.34432	393811	2.79	18.69
0.58342	0.34038	389301	2.76	21.45
0.57782	0.33388	381868	2.71	24.16
0.57735	0.33333	381242	2.70	26.86
0.57735	0.33333	381242	2.70	29.57
0.57735	0.33333	381242	2.70	32.27
0.57735	0.33333	381242	2.70	34.97
0.57735	0.33333	381242	2.70	37.67
0.57735	0.33333	381242	2.70	40.38
0.57735	0.33333	381242	2.70	43.08
0.57735	0.33333	381242	2.70	45.78
0.57735	0.33333	381242	2.70	48.49
0.57735	0.33333	381242	2.70	51.19
0.57735	0.33333	381242	2.70	53.89
0.57735	0.33333	381242	2.70	56.59
0.57735	0.33333	381242	2.70	59.30
0.57735	0.33333	381242	2.70	62.00
0.57735	0.33333	381242	2.70	64.70
0.57735	0.33333	381242	2.70	67.40
0.57735	0.33333	381242	2.70	70.11
0.57735	0.33333	381242	2.70	72.81
0.57735	0.33333	381242	2.70	75.51
0.57735	0.33333	381242	2.70	78.22
0.57735	0.33333	381242	2.70	80.92
0.57436	0.32989	377309	2.67	83.59
0.57124	0.32631	373210	2.65	86.24
0.56796	0.32258	369944	2.62	88.85
0.56423	0.31835	364107	2.58	91.44
0.55839	0.31180	356617	2.53	93.96
0.55667	0.30988	354419	2.51	96.48
0.54877	0.30115	344433	2.44	98.92
0.36531	0.13345	152633	1.08	100.00
	12.3333	1.411E7	100.00	

Table A2.6. Analisi MCA per 2016. (Età ≥45 ≤74, Contributi parziali all'inerzia per i punti di colonna)

	Dim1	*Dim2*	*Dim3*
No	0.4013	0.0000	0.0001
Sì	0.0928	0.0000	0.0000
45	0.0000	0.0200	0.0081
46	0.0104	0.0011	0.0137
47	0.0023	0.0041	0.0273
48	0.0027	0.0001	0.0145
49	0.0044	0.0024	0.0164
50	0.0001	0.1425	0.0045
51	0.0014	0.0997	0.1405
52	0.0005	0.0004	0.0011
53	0.0024	0.0729	0.0052
54	0.0001	0.0382	0.0096
55	0.0026	0.0106	0.0016
56	0.0003	0.0006	0.0209
57	0.0009	0.0020	0.0000
58	0.0000	0.0127	0.0170
59	0.0004	0.0130	0.0141
60	0.0002	0.0005	0.0001
61	0.0000	0.0368	0.0598
62	0.0001	0.0013	0.0194
63	0.0001	0.0053	0.0029
64	0.0000	0.0023	0.0007
65	0.0003	0.0028	0.0022
66	0.0001	0.0007	0.0110
67	0.0002	0.0089	0.0182
68	0.0002	0.0000	0.0077
69	0.0006	0.0000	0.0108
70	0.0007	0.0001	0.0009
71	0.0003	0.0013	0.0012
72	0.0010	0.0000	0.0013
73	0.0013	0.0039	0.0012
74	0.0026	0.0129	0.0609
BOLOGNA	0.0065	0.0002	0.2000
FERRARA	0.0020	0.1511	0.0743
IMOLA	0.0024	0.0141	0.0550
MODENA	0.0084	0.0093	0.0150
PARMA	0.0680	0.0128	0.0285
PIACENZA	0.3592	0.0218	0.0000
REGGIO EMILIA	0.0107	0.2928	0.0053
ROMAGNA	0.0122	0.0007	0.1289

4.

Individual Prevention and Organized Screening: a Reflection on Data of the Access of Early Detection of Breast Cancer in Emilia-Romagna, and in Bologna in Particular, After the Reorganization of the Offering[1]

1. Introduction

The data (2002-2016) from the Regional Health Service of Emilia-Romagna on the access to the mammographic services in the Local Health Authorities (AUSLs) of the region (data accessed as generalized civic access) allowed (poster at AEA Meeting 2020) to identify the different choices (YES screening; NO screening) for the early detection of breast cancer undertaken by the women in Bologna and in the other AUSLs in Emilia-Romagna after the solutions adopted after 2010 to deal with the problems of waiting lists and the control of spending for the services of early detection of breast cancer, redirecting the services toward the screening of public health(poster at AEA Meeting 2017).

To better understand what happened in the early detection of breast cancer in Bologna after 2010, women residing in the Bologna AUSL who underwent at least one mammogram in 2010 in spontaneous access or in scheduled screening were taken into consideration and the choices they made in the following years up to 2016, the last available year, were analyzed (paper at WEAI meeting in March 2021).

Thus in 2016 it appears that 58,1% of women who had had one or more mammograms through spontaneous access in 2010 progressively did not have any more mammograms (at least within the National Health Service), neither in spontaneous access nor in scheduled screening.

Now in this new paper we examine the different behavioral patterns of women with respect to early detection of breast cancer in Emilia-Romagna, and in particular in Bologna, and we study their different reactions to changes

1. The paper was presented as a poster at the 2022 American Economic Association (AEA) Virtual Annual Meeting, January 07-09, 2022.

in the offering. We, therefore, want to compare our results with the new debate taking place in Italy (National Screening Observatory, Italian Group for Mammographic Screening, Surveillance PASSI of the Istituto Superiore di Sanità) on the early detection of breast cancer and on the organized screening.

2. Methods and Materials

From the ASA database (Assistenza Specialistica Ambulatoriale – Outpatient Specialized Assistance) the bilateral mammographic services related to women resident in Emilia Romagna who carried out the service in an Emilia Romagna facility under the Italian NHS regime were extracted.

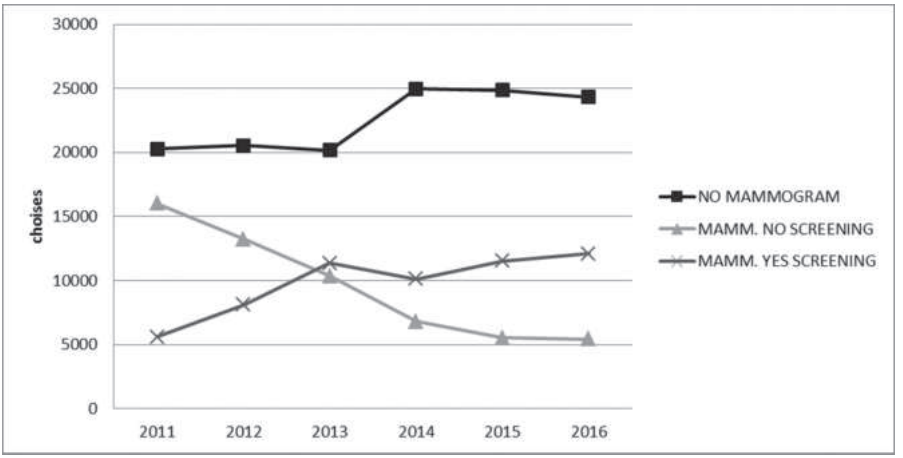
In the received file (about 5,000,000 bilateral mammographic service records) the following fields are present:

- YEAR: identifies the year in which the service was performed;
- COD_AZI: identifies the Local Health Authority of territorial location of the supplying structure;
- COD_STR1: identifies the code of the supplying structure through STS11 coding;
- COD_STR: identifies the code of the supplying structure and the name at 2016 (not all the structures of the past years have a name, for example the structures closed, which is why the code was also given);
- USL_RES: identifies the Local Health Authorities (AUSL) of residence of the client;
- ID_PAZ: numerically identifies a patient;
- PRESTAZ: identifies the code and the name of the bilateral mammogram;
- DT_EROG: identifies the delivery date;
- ETA: identifies the age of the patient at the time the service is provided; Screen: s for services performed in screening, n for services performed in another way.

The ASA database has existed since 2002 and entered into force after 2005. The year 2016 was delivered not yet complete because there is no the last data sending.

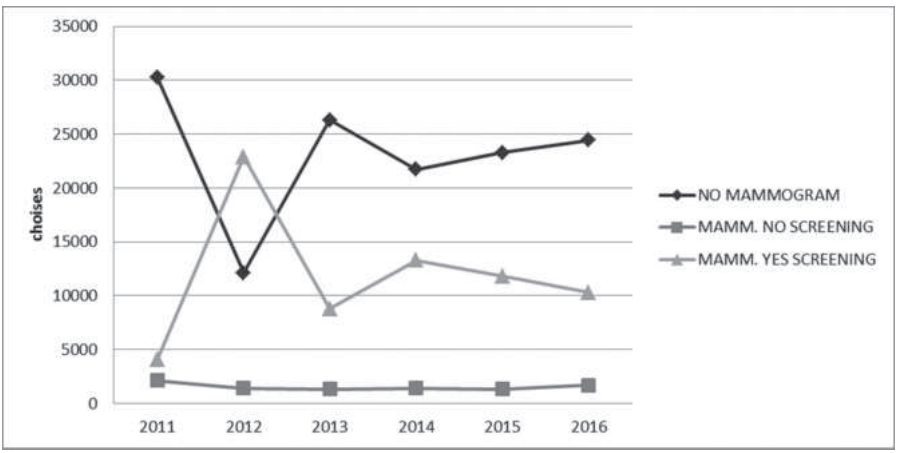
In this part of the work I start to evaluate the personal impact of the reorganization of the offer of early detection services for breast cancer for women that want to access to mammograms and to describe the choices of women (in the AUSL of Bologna) and how they have dealt with the reorganization of the offer from year to year starting from the regional provisions of 2010.

Figure 1. 2011-2016 choices on early detection of breast cancer of women residing in AUSL of Bologna receiving a mammogram in spontaneous access in 2010 in Bologna



Source: my elaboration on data of the SSR Emilia-Romagna

Figure 2. 2011-2016 choices on early detection of breast cancer of women residing in AUSL of Bologna receiving a mammogram in programmed screening in 2010 in Bologna



Source: my elaboration on data of the SSR Emilia-Romagna

3. A Longitudinal Study

To better understand what happened in the early detection of breast cancer in Bologna after 2010, women residing in the Bologna AUSL who underwent at least one mammogram in 2010 in spontaneous access were taken into consideration (41,863, of which 14,175 were 69 years and over and could progressively exit early detection in subsequent years) or in scheduled screening (36,423, of which 8,086 were 69 years and over and could progressively exit early detection in subsequent years) and the choices they made in the following years up to 2016, the last available year, were analyzed.

Women who in 2010 had made early detection of breast cancer through spontaneous access mammograms in the following years had less and less access to spontaneous access mammograms, with a progressive decline that led them to access only 5,438 spontaneous access mammograms in 2016. If from 2011 to 2013 they increased access to mammograms in scheduled screening, and from 2014 they remained relatively constant in this type of access to early detection until 2016, on the other hand between 2013 and 2014 there was a leap in the non-performance of mammograms neither in spontaneous access, nor in scheduled screening which was then maintained until 2016. Thus in 2016 it appears that 58,1% of women who had had one or more mammograms in 2010, after the changes in the organization of the offer of early detection services in the Bologna AUSL of 2011-2012, progressively did not have any more mammograms, neither in spontaneous access nor in scheduled screening. From the database, obtained in civic access by the Regional Health Service (SSR), it is not possible to know if there has been a definitive abandonment of the early detection of breast cancer or if women have opted for mammograms with direct payment out of pocket, perhaps in intramoenia in the same public structures (Gatti, 2016; 2017). 28.9% of women who had had one or more mammograms in 2010 progressively opted for mammograms in scheduled screening and progressively only 13.0% of them still underwent spontaneous access mammogram (*Figure 1*).

Also from the database it is possible to verify that from the more than 12 thousand mammograms per year in spontaneous access offered by the Maggiore Hospital in the period 2010-2011, we have gone to an average of 2500 mammograms per year offered in the period 2012-2016, without any replacement by the Bellaria Hospital (only in 2015 and 2016 about 600 mammograms per year were offered). The other 3 thousand mammograms still carried out in 2016 by some of the 40 thousand women who in 2010 had access to the early detection of breast cancer in spontaneous access are therefore offered by the AUSL of Bologna in structures with lower quality

standards and not certified EUSOMA (European Society of Breast Cancer Specialists) (Wilson, Marotti, Bianchi *et al*., 2013; Gatti, 2016; 2017).

The trend of mammograms for the early detection of breast cancer in the period 2011-2016 of the women of the AUSL of Bologna who in 2010 underwent one or more mammograms in scheduled screening seems to be able to be explained in the biennial frequency of scheduled screening, and here too with a progressive abandonment of mammograms (at least within the National Health Service) (*Figure 2*).

4. A Life Course

It was decided to analyze in greater detail the experience of the women who were assisted by the breast diagnostic center of the Ospedale Maggiore in Bologna. The center was closed in 2012 and the activity was transferred to the Bellaria Hospital in the new Breast Unit active only for population screening mammograms. This case was at the origin of the current research work on the early detection of breast cancer and its reorganization in Emilia-Romagna and in Bologna in particular.

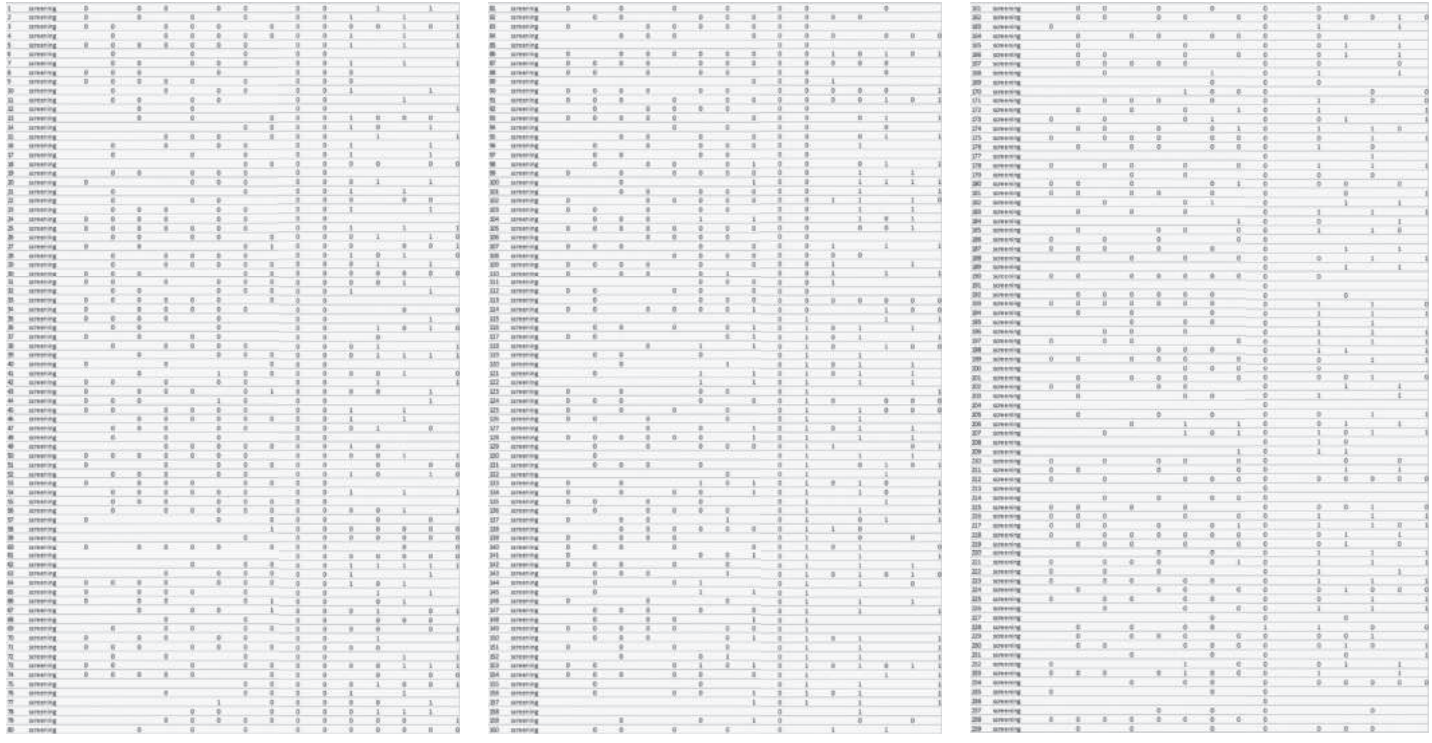
From the data relating to the mammograms received from 2002 to 2016 by the 239 women resident in the Bologna AUSL aged 55 (age at which they should have already started their early detection of breast cancer and therefore they should have chosen the strategy that best corresponds to their needs, and age in which they have an early detection of breast cancer path after 2010 that is still very long) who in 2010 received a bilateral mammogram in spontaneous access at the breast diagnostic center of the Maggiore Hospital of Bologna interesting information emerges (*Table 1*).

First of all, it should be noted that the vast majority of these women had mammograms for early detection prior to 2010 within the National Health Service, always in spontaneous access. There are very sporadic cases in which these women access population screening mammogram before 2010.

On adherence to the prescriptions in terms of timing of early detection, from these data, it seems that there is no complete adherence. Before 2010, however, there is a substantial group that shows the maintenance of a good cadence.

The choices of these women after 2010 are much more varied. The presence in their early detection of breast cancer from 2011 to 2016 of at least one mammogram within the population screening program is predominant. In a good nucleus of women, among those who have definitively passed to population screening, the biennial adherence is maintained. Another group, still managing to receive the mammogram in spontaneous access, maintains

Table 1. 2011-2016 choices on early detection of breast cancer of the 239 women residing in AUSL of Bologna receiving a mammogram in spontaneous access in 2010 at the age of 55 in Bologna at breast diagnostic center of the Maggiore Hospital



the annual frequency. 34 women from 2013 to 2016 no longer appear in the database and therefore do not receive mammograms or no longer receive it within the National Health Service and screening programs.

Compared to the longitudinal analysis carried out on all women residing in the Bologna AUSL, the group of 55-year-old women who received a spontaneous access mammogram in 2010 at the breast diagnostic center of the Ospedale Maggiore seem much more involved in their path of early detection of breast cancer. They maintain this involvement also in a situation that has changed considerably from 2010 onwards, and that forced them to leave from May 2011 a usual and high-level place for the protection of their health, as the breast diagnostic center of the Maggiore Hospital was.

The Center was no longer operating after the reorganization of the early detection of breast cancer in the AUSL of Bologna, given the solutions adopted in 2010 to address the problems of waiting lists (and the control of spending) by the Regional Health Service of the Emilia-Romagna.

These women do not present the levels of abandonment highlighted by the global longitudinal survey and manage in a good group to still keep a cadence (although almost never annual or constant biennial) during the time.

5. Results

But what has happened within the health system since the Emilia-Romagna Regional Health Service decided to adopt measures to contain waiting lists in 2010 and in the Bologna AUSL it was decided to redirect the early detection of breast cancer in spontaneous access to the population screening under the responsibility of the Public Health Service?

First of all, in Italy and Emilia-Romagna the reminders of the PASSI Surveillance of the Istituto Superiore di Sanità do not cease on the fact that

> the promotion and effectiveness of mammography screening grows if the invitation of the AUSL is accompanied by the advice of your doctor or a health care practitioner. The invitation letter alone is not enough to guarantee the participation of women in screening, while medical advice is essential (Istituto Superiore Sanità – Epicentro, 2021; Carrozzi, 2019) (*Figures B and C*).

Other changes have occurred. For the early detection of breast cancer, work is being done on customizing it with respect to the characteristics of each woman. The personalization of the early detection of breast cancer involves both technological factors and the modalities of medical approach to women's health. At an international level and with European Union funding,

for example, to investigate whether a "personalized breast cancer screening" could be a better screening option for women aged 40 to 70, the MyPeBS project was launched in 2018 with a deadline in 2026. For Italy it is the leader of the project of the Local Health Authority (AUSL) of Reggio Emilia IRST IRCCS, with the Reference Center for Epidemiology and Cancer Prevention in Piedmont (CPO) at the AOU Città della Salute e della Scienza (Turin) and Institute for Cancer Study and Prevention.

Another important element of change in these years was the establishment in Italy of the Breast Units starting from 2016, following the request of 2006 by the European Union to establish Breast Centers in all countries. There is a wide debate within the world of mammography screening (Italian Group for Mammography Screening, National Screening Observatory) with respect to the changes that the Breast Units have brought in the field of Breast Pathology, and in particular on how the adoption of new guidelines, new recommendations and methodologies can be included in the process of integrating screening programs and Breast Units, taking into account that at European level there is no clear indication on how screening programs and Breast Units should work on the common ground of early detection of breast cancer.

It seems that the emphasis of the PASSI Surveillance on the need to relaunch the role of the doctor or health worker in advising women to participate in mammography screening, the launch of a path for a personalized breast cancer screening at an international level to improve the effectiveness of early detection of breast cancer, the establishment of Breast Units that do not belong to the public health sphere, but to that of the protection of individual health are changing the perspectives of the early detection of breast cancer by redirecting it towards the individual rather than the population.

6. Conclusions

The possibility of having access as a citizen to the data on the early detection of breast cancer in Emilia-Romagna is an important tool for assessing the impact of the changes in health policies at regional and local level. In the meantime, work is still being done on different fronts, and this time perhaps with the needs of the person at the center, to improve the early detection of breast cancer.

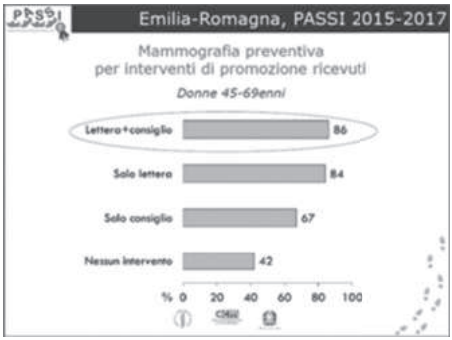
With 360,000 new diagnoses and 92,000 deaths each year in Europe, breast cancer remains the most common cancer in women, but is more often curable if diagnosed early enough.

December 2021

Figure A. The city of Bologna

Source: Google Maps

Figure B. Preventive mammogram on the basis of received promotional interventions



Source: Istituto Superiore Sanità – Epicentro (2021)

Figure C. Women 50-69 reported receiving health advice to have regular preventive mammograms

Source: Istituto Superiore Sanità – Epicentro (2021)

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5.

Maintaining the Secondary Prevention Against Breast Cancer for Women in Emilia-Romagna (IT) and External Social and Economic Shocks (2002-2016)[1]

1. Introduction

I presented studies on the effects on secondary prevention against breast cancer for women in the city of Bologna after the 2010 changes in the offering of breast cancer early detection services within the National Health Service at the AEA Annual Meetings in the last years.

The results showed that starting from these changes a significant part of the women in this city, who previously received mammogram for the early detection of breast cancer, gradually moved away from mammogram (at least received within the National Health Service) and, in particular, this happened for women who previously accessed mammogram via spontaneous access with the prescription of the general practitioner (Gatti, 2022).

One of the essential elements to achieve a high level of effectiveness of early detection of breast cancer lies in maintaining the recommended regular intervals for mammograms and other diagnostic investigations, and is therefore centered on the perseverance of women and their full participation in the interventions of early detection.

Now, in this paper I present on the basis of the same data provided to me (as a citizen in Generalized Civic Access) by the Regional Health Service (about 5,000,000 bilateral mammographic service records) and for the whole Emilia-Romagna region an analysis of the effects of social and economic shocks, external to the National or Regional Health Service or Local Health Authority, on the perseverance of women in Emilia-Romagna in maintaining the secondary prevention path against breast cancer. The time period of the study is that between 2002 and 2016.

1. The paper was presented as a poster at the 2023 American Economic Association (AEA) Annual Meeting in New Orleans (LA), January 06-08, 2023.

Indicators of measurement of these effects on the secondary prevention against breast cancer for women linked to the most significant social and economic shocks in Italy and Emilia-Romagna in those years will be presented. The shocks that essentially undermine certainties and points of reference are considered.

2. Methods and Materials

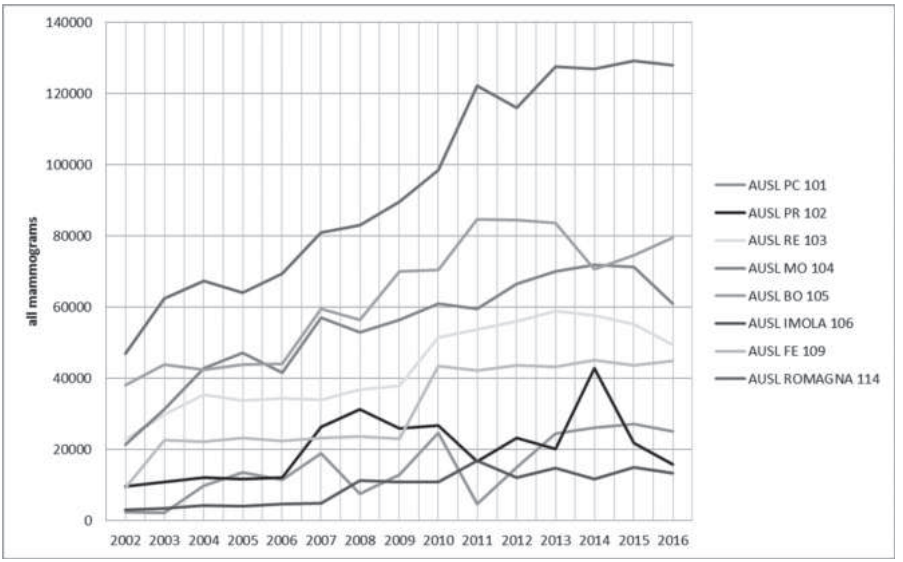
The work is made possible by the data accessed personally as generalized civic access: From the ASA database (Assistenza Specialistica Ambulatoriale – Outpatient Specialized Assistance) the bilateral mammographic services related to women resident in Emilia Romagna who carried out the service in an Emilia Romagna facility under the Italian NHS regime were extracted.

In the received file (about 5,000,000 bilateral mammographic service records) the following fields are present:

- YEAR: identifies the year in which the service was performed;
- COD_AZI: identifies the Local Health Authority of territorial location of the supplying structure;
- COD_STR1: identifies the code of the supplying structure through STS11 coding;
- COD_STR: identifies the code of the supplying structure and the name at 2016 (not all the structures of the past years have a name, for example the structures closed, which is why the code was also given);
- USL_RES: identifies the Local Health Authorities (AUSL) of residence of the client;
- ID_PAZ: numerically identifies a patient;
- PRESTAZ: identifies the code and the name of the bilateral mammogram;
- DT_EROG: identifies the delivery date;
- ETA: identifies the age of the patient at the time the service is provided;
- Screen: s for services performed in screening, n for services performed in another way.

The ASA database has existed since 2002 and entered into force after 2005. The year 2016 was delivered not yet complete because there is not the last data sending.

Graphic 1. Total number of mammograms provided (in spontaneous access and in population screening) by the 8 AUSLs of the Regional Health Service of Emilia-Romagna, years 2002-2016



Source: my elaboration on data of the SSR Emilia-Romagna

3. The Shocks

An early detection is a diagnosis made when the disease is still in its early stages. Identifying a disease early allows people to start treatment before the damage worsens. But the examinations necessary in early detection of breast cancer are scheduled by the woman, both in the presence of a population screening and with spontaneous access through the general practitioner, in the absence of symptoms and therefore require a deep awareness that one must take care of oneself with regular visits and clinical examinations (in the case of early detection of breast cancer the examinations consist of a mammogram to be carried out in a dedicated center – Breast Unit – annually or every two years, depending on the case).

In the previous works (Gatti, 2016; 2017; 2018; 2020; 2022) we have seen what happens in the early detection strategy against breast cancer in women in the city of Bologna when important processes of reorganization of the early detection services within the Regional Health Service have occurred.

But how do women react in the protection of their health and specifically

in the early detection of breast cancer in the presence of shocks not deriving from the reorganization of public health services dedicated to them, but in the presence of strong changes in external conditions?

The data are those used for the analysis of the effects of the reorganization of early detection services. They are data ranging from 2002 to 2016. Over this period of time, two external shocks to the National and Regional Health Service were highlighted which may have had a strong impact on the lives of women and which may have attenuated their attention for the early detection of breast cancer through annual or biennial mammography, as appropriate, in Emilia-Romagna.

The first external shock (of a financial nature) whose effect we are trying to investigate on the attention to early detection of breast cancer in women in Emilia-Romagna precedes the reorganizations whose effects we have studied in previous years. This is the explosion also in Italy of the financial crisis triggered by the subprime mortgage crisis that began in the United States in 2006. The symbol date in Italy is September 15, 2008 which corresponds to the start of the bankruptcy procedure of the investment bank Lehman Brothers.

A shock that, however, at least in the short term, did not affect the offer of early detection of breast cancer services in Emilia-Romagna and which hit the entire region fairly homogeneously.

The second external shock (of natural origin) of which we are trying to investigate the effect on the attention to the early detection of breast cancer in women in Emilia-Romagna is the earthquake in Emilia in May 2012 (between 20 and 29 May 2012) and therefore temporally at the beginning of the reorganization process of breast cancer early detection services in particular in Bologna. The area affected by the two seismic events was the northern portion of the Emilian Po Valley between the provinces of Reggio Emilia, Modena, Ferrara and Bologna (*Figure C*).

The 2012 earthquake in the affected areas of the Bologna AUSL led to the transfer of various outpatient and diagnostic activities, maintaining the offer (AUSL Bologna, 2012). For Modena

> The impact of the earthquake also hit health facilities: 3 hospitals of the Modena Local Health Authority (Mirandola, Carpi and Finale Emilia) and part of the Modena University Hospital were evacuated, with an almost instantaneous subtraction of 700 beds, and the unavailability of spaces for many clinics in the northern area, in particular the closure of the structure of the former hospital of Guastalla [ndr. Province of Reggio Emilia]. This has had repercussions in the territorial services, pharmacies and general practitioners' surgeries, many of whom have had their studies uninhabitable and had to operate first in tented

> camps and then, even for not short periods, in containers. […], the health system was activated immediately with a rapid and integrated collaboration, in particular of the two USL companies [Modena and Reggio Emilia], and its professionals worked at the forefront to guarantee the continuity of care immediately (AUSL Modena, 2019).

4. The Effects 1

Using the data (2002-2016) from the Regional Health Service of Emilia-Romagna on the access to the mammographic services in the Local Health Authorities (AUSLs) of the region (data that I accessed as citizen as generalized civic access) can be verified in a simple way two types of changes:

1. to verify whether in correspondence with or following the two shocks described there has been a decrease in the mammograms requested and offered to women;
2. to verify, more specifically, if in the path of early detection of breast cancer of individual women (the data available allow it) in correspondence with or following the shocks taken into consideration there have been specific changes.

From the analysis of the trend of mammograms that women had access to in the 8 AUSL of Emilia-Romagna between 2002 and 2016 it emerges that in 2008 (explosion of the financial crisis in Italy) there was a significant decrease in mammograms received by women in the Piacenza AUSL (-59.8% compared to the previous year) with a recovery in subsequent years (+69.6% from 2008 to 2009), in the Modena AUSL (-7.1% compared to the year before) with a recovery in subsequent years (+6.6% from 2008 to 2009) and in the AUSL of Bologna (-5.3% compared to the previous year) with a recovery in subsequent years (+24.3% from 2008 to 2009). A particular case is that of the Parma AUSL which sees the peak of mammograms to which women had access in 2008 and which from there then sees a decline up to and including 2011 (*Graphic 1*).

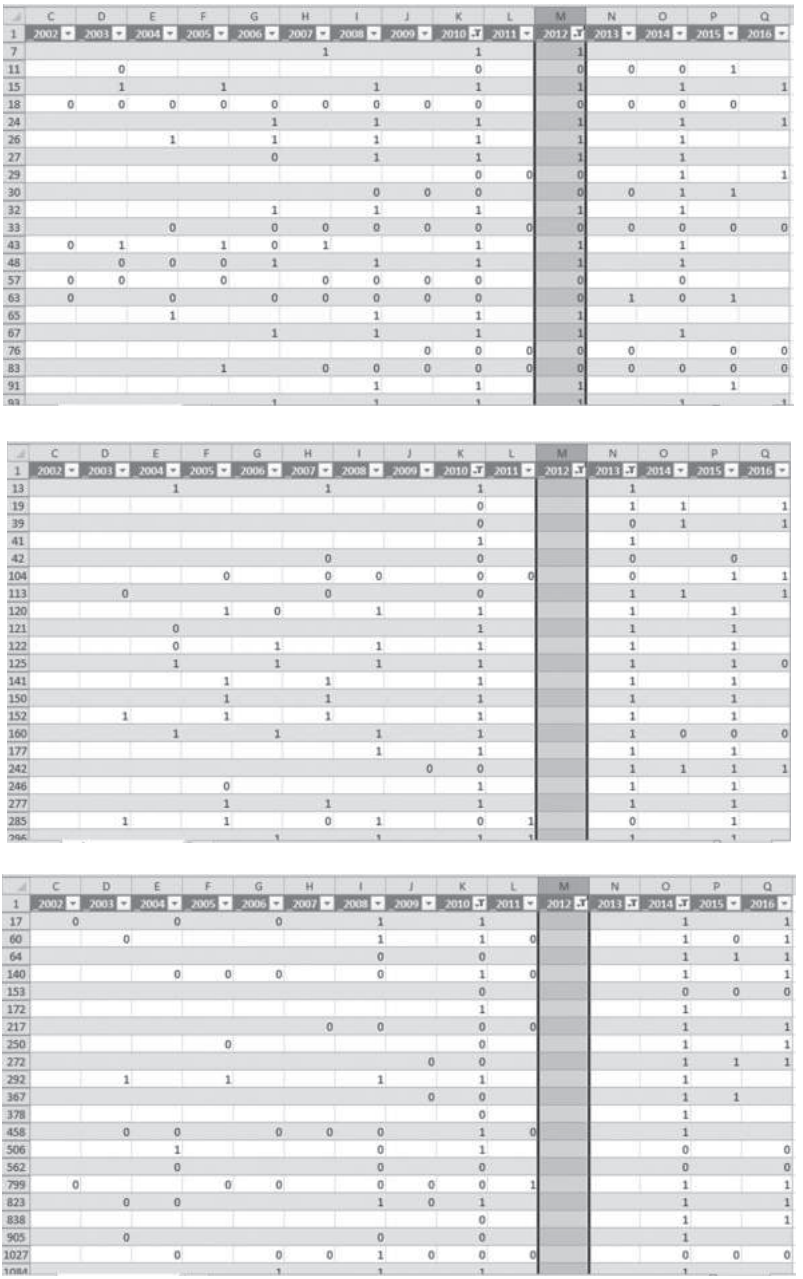
It must be remembered that since 2010, according to the new national scientific indications, in Emilia-Romagna the population mammography screening program, which was previously open to women aged 51 to 69 (with biennial mammography), has been extended to women between 45 and 50 years (with annual mammography) and between 70 and 74 (with biennial mammography).

The expansion of the number of women involved in population screening could partly cover possible dropouts due to the financial shock of 2008 and the subsequent economic crisis. Economic crisis that the PASSI survey (Carozzi, 2019; Istituto Superiore Sanità – Epicentro, 2021) highlighted in the years as a determinant of inconstancy or abandonment of the early detection of breast cancer in Italy and also in its Emilia-Romagna region. This difficulty of analysis can be overcome by the analysis of the individual path of women for the early detection of breast cancer, which is allowed by the type of data that you have.

The earthquake of May 2012, as we have seen, only touched the northern portion of the Emilian Po Valley between the provinces of Reggio Emilia, Modena, Ferrara and Bologna and therefore the analysis of the effects on women's attention to early detection of breast cancer is limited in this case only to the 4 AUSL of reference of these territories. For the AUSL of Reggio Emilia and for the AUSL of Modena, despite the unavailability of health facilities, no decline in the growth trend of mammograms received by women in 2012. This could confirm what the AUSL assured in terms of maintenance of the continuity of care, always taking into account the enlargement since 2010 of the number of women involved in population mammography screening throughout Emilia-Romagna. For the AUSL of Ferrara and Bologna there are no significant changes compared to the previous year.

In the years following 2012 in the Modena AUSL the growing trend of mammograms received by women continued until 2014 and then a decline as in other AUSL in the region. In the Reggio Emilia AUSL there was growth until 2013 and then the decline. For the Ferrara AUSL, the trend remains constant over time. For the AUSL of Bologna in the posters presented in the past years at the Meetings of the American Economic Association the heavy effects of the reorganization of the mammography offer and of the services available to women for the early detection of breast cancer have been studied. Effects that led women often outside, at least, of the National Health Service which should provide both spontaneous access with the prescription of the general practitioner, and population mammography screening. And the numbers of mammograms received by women in decline from 2011 to 2014, perhaps could be more the expression of the difficulties caused by the reorganization of the services of early detection of breast cancer in the AUSL of Bologna, than the effects of the shock of the earthquake of the May 2012 which did not have its epicenter in the Bologna area, also taking into account the declarations of the AUSL itself which guaranteed continuity of assistance even in the post-earthquake.

Table 1. Partial snapshot of the early detection of breast cancer path of women who received a mammogram in the Modena AUSL in 2010 and repeated it in 2012 or 2013 or 2014 or 2015



	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
7						1			1		1				
11			0						0		0	0	0	1	
15			1		1			1	1		1		1		1
18	0	0	0	0	0	0	0	0	0		0	0	0	0	
24					1		1		1		1		1		1
26				1		1		1	1		1		1		
27					0		1		1		1		1		
29									0	0	0		1		1
30							0	0	0		0	0	1	1	
32					1		1		1		1		1		
33				0		0	0	0	0	0	0	0	0	0	0
43	0	1		1	0	1			1		1		1		
48		0	0	0	1		1		1		1		1		
57	0	0		0		0	0	0	0		0		0		
63	0		0		0	0	0	0	0		0	1	0	1	
65			1				1		1		1				
67					1		1		1		1		1		
76								0	0	0	0	0		0	0
83				1		0	0	0	0	0	0	0	0	0	0
91							1		1		1			1	
93					1		1		1		1		1		1

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
13				1			1		1			1			
19									0			1	1		1
39									0			0	1		1
41									1			1			
42							0		0			0		0	
104					0		0	0	0	0		0		1	1
113		0					0		0			1	1		1
120				1	0			1	1			1		1	
121				0					1			1		1	
122				0		1		1	1			1		1	
125				1		1		1	1			1		1	0
141					1		1		1			1		1	
150					1		1		1			1		1	
152		1			1		1		1			1		1	
160				1		1		1	1			1	0	0	0
177								1	1			1		1	
242									0	0		1	1	1	1
246					0				1			1		1	
277					1		1		1			1		1	
285		1			1		0	1	0	1		0		1	
296						1		1	1	1		1		1	

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
17	0		0		0		1		1				1		1
60		0					1		1	0			1	0	1
64							0		0				1	1	1
140				0	0	0		0	1	0			1		1
153									0				0	0	0
172									1				1		
217							0	0	0	0			1		1
250					0				0				1		1
272								0	0				1	1	1
292		1			1			1	1				1		
367								0	0				1	1	
378									0				1		
458		0	0			0	0	0	1	0			1		
506			1					0	1				0		0
562			0					0	0				0		0
799	0				0	0		0	0	0	1		1		1
823		0	0					1	0	1			1		1
838									0				1		1
905		0						0		0			1		
1027			0			0	0	1	0	0	0		0	0	0
1084						1		1		1			1		

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
219			0	0	0	0	0	0	0	0				1	0
278				1		1		1		1				1	
294							0	0	0	0				1	
467	0	0	0	0		0	0		0					0	0
545					1		1		1					1	
665							1		1					1	
724									0					1	1
803						1			1					1	
1153							1		1					1	
1305									1					1	
1391	0		0		0		1		0	0				1	
2356									0					1	
2360								0	0	0				1	
2453		1					1		1					1	
2558	0		0	0			0	0	0					1	
2592				1	1		1		1	1				0	
2687									0					1	1
2751			1		1		1		1					1	
2920								0	0					1	1
3190		0							0	0				0	
3288	0		0			0		0	0					1	

Source: my elaboration on data of the SSR Emilia-Romagna

5. The Effects 2

Among the two shocks taken into consideration, the one that probably most immediately undermined the balance of women's personal lives in a specific area is the 2012 Emilia earthquake in the Modena AUSL territory.

We will then consider this shock to apply a method of verifying its impact on the individual path of early detection of breast cancer of the women involved.

To evaluate the maintenance of the early detection of breast cancer with the data available as a citizen, a group of reference women was identified. We took into consideration the 60.891 women who in 2010 received a mammogram either in spontaneous access through the prescription of the general practitioner or within the population mammography screening program, however, always within the National Health Service in the AUSL of Modena. In order for there to be adherence to the path of early detection of breast cancer, not identifying individual women by age, we assume that this group of women must have a mammogram again at least within two years. Of the 60.891 women who received a mammogram in 2010, 36.853 (60.52%) had at least done it again in 2012, the year of the earthquake in May. 24.038 women from the initial group of 60.891 did not undergo any mammogram in 2012. Of these 24.038 women 14.095 (further 23.15% of the initial group) underwent mammogram in 2013, 2.339 did it in 2014 and 1.033 in 2015. 6.571 women remain (10.8% of the initial group) who did not undergo mammogram again as of 2015.

By checking the mammograms carried out before 2010 within this group of 60.891 women, it can be seen that the higher frequency of mammograms

is linked to the repetition of mammogram at least in 2012, progressively more thinned in the 2002-2009 interval are the mammograms of women who after 2010 received the new mammogram more and more forward in time (*Table 1*).

From these data it would seem that, despite the overall data on mammograms performed, the 2012 earthquake did not have a null impact on the early detection of breast cancer in women at the Modena AUSL. It would seem that there has been at least partly a shift in mammogram to 2013, in paths that are generally irregular with respect to the recommendations.

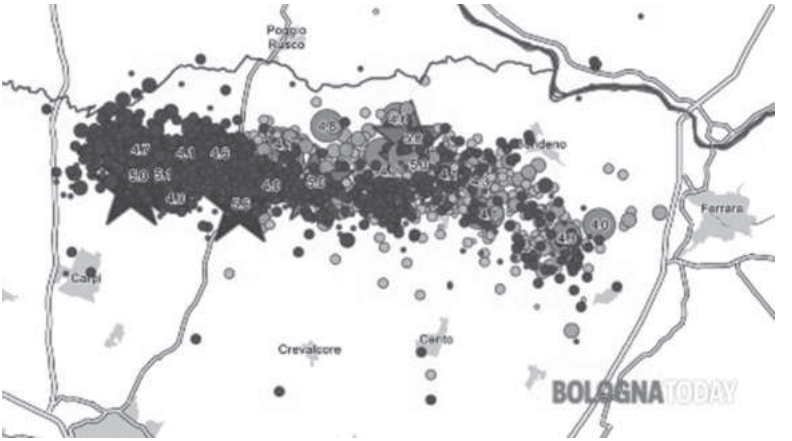
Figure A. The city of Bologna

Source: Google Maps

Figure B. The collapse of Lehman Brothers on September 15, 2008

Source: Reuters

Figure C. Map of the seismic sequence from May 19 to July 19, 2012



Source: Bologna Today

6. Conclusions

External shocks and reorganization of breast cancer early detection services within the Regional Health Service of Emilia-Romagna, if analyzed in relation to the early detection path of each individual woman, seem to undermine this path of women for the protection of their own health. It is possible that these effects are more relevant in this context of secondary prevention, without obvious symptoms of disease and where the maintenance of the frequency of checks determines the future health outcome. The tools to protect this path of early detection lie in the tenacity of women, in the attention of the doctors and in the correct functioning of the National and Regional Health Service with respect to the principles that identify them.

December, 2022

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6.

The Italian National Recovery and Resilience Plan (NRRP) 2021-2026, the National Health Equity Program (PNES) 2021-2027, the Women, and Their Health[1]

1. Introduction

In debates, the European Union is often presented as a complex institution which interferes, by bureaucratizing it, in the social and economic life of the member countries.

For Italy this has often not been the case. Since the post-war period, Italy has struggled to implement important policies in favor of gender equality by supporting female employment and entrepreneurship, the implementation of various enabling interventions, starting with social services such as nursery schools, and appropriate policies to ensure a proper balance between professional and personal life, as it has not had, for example, autonomous and articulated green policies and struggles to achieve the modernization of the economy (Council of the Ministers of the Italian Republic, 2021).

On the other hand, compared to European countries such as Germany and France, since 1978 Italy has moved in the field of protection of the health of individuals from a Bismarkian-type social health insurance system to a system of public protection of the health of universalistic type, taking as a reference the National Health Service of Britain created by William Beveridge in the 1940s (but not adopting the complete social security system that Beveridge had designed together with the National Health Service). A universalistic model of protecting the health of individuals that allows a more efficient use of resources to achieve health objectives compared to other health models based on social insurance or private insurance.

1. The paper was presented at the Western Economic Association International (WEAI) Annual Conference 2024 – Virtual day on June 27, 2024. The Author thanks the Session participants and the discussant for their stimulating comments. This version of the paper takes into account the suggestions that emerged. The paper constitutes the initial part of a study on the effects of post-Covid 19 European funding on Italian healthcare. Study financed with individual research support funds (RFO) from the Italian Ministry of Research.

2. The Next Generation EU

The European Next Generation EU (NGEU) plan or European Recovery and Resilience Fund is a fund worth 750 billion euros approved in July 2020 by the European Council in order to support Member States affected by the Covid-19 pandemic. 19. The NGEU fund covers the years 2021-2026 and is accompanied by the EU budget 2021-2027, with a total value of €1824.3 billion.

In Italy, at least, it was presented as an emergency intervention designed immediately to respond to the economic and social consequences of the pandemic and to strengthen health systems. If the timing actually has the characteristics of an emergency intervention, the areas of intervention:

- boost the green transition through the promotion of renewable energies, sustainable mobility and more;
- accelerate digital transformation through greater digitization of public services and the wider economy;
- reinforce social infrastructure and services, while reducing territorial disparities;
- enhancing access to advanced education and training in skills relevant to the future economy;
- support inclusive growth, research and development, and innovation for all;
- ensure modern, efficient and accessible healthcare service;

base their origins and settings from much further away. See the "target set" by the Barcelona European Council of 2002[2] on achieving a minimum offer of 33 percent for early childhood services by 2026, which for Italy is a goal to be achieved and which is at the center of the political debate in recent months, or the intention for Italy, through the Recovery and Resilience Plan's reforms and investments, to accelerate the achievement of the 17 Sustainable Development Goals (SDGs) endorsed by the UN 2030 Agenda (Council of the Ministers of the Italian Republic, 2021) (ASviS, 2023). Therefore for Italy the Next Generation EU with its National Recovery and Resilience Plan (NRRP) constitutes once again not only a stimulus intervention to restart

2. In 2002 a meeting of the European Council in Barcelona set targets to improve the provision of childcare in the European Union (Mills *et al*., 2014). The intention of the so called `Barcelona targets´ was to encourage EU member states to remove disincentives to female labour force participation. Taking into account the demand for childcare facilities, it was agreed to provide childcare by 2010 to at least 90 percent of children between three years old and the mandatory school age, and to at least 33 percent of children under three years of age (Barcelona European Council, 2002).

the economy, limit social imbalances, but once again a powerful means to introduce highly innovative policies (at least for Italy) in the fields: green transition; digital transformation; smart, sustainable, and inclusive growth and jobs; social and territorial cohesion; health and resilience; and policies for the next generation, including enhancing education and skills.

3. The Next Generation EU: What Is Missing?

The objectives declared by Next Generation EU plan explicitly state the aim of working towards a more equal European Union:

> From north to south, east to west, we want to build a Europe that works for everyone. We want all Europeans to have equal opportunities, whoever they are and wherever they live. And we want to celebrate diversity in all its forms.
>
> With NextGenerationEU, we are:
>
> - fighting against racism and xenophobia
> - promoting gender equality and women's empowerment
> - protecting the rights of the LGBTQI+ community and combating discrimination
> - strengthening EU law to cover all forms of hate speech and hate crime.
>
> Equality also means economic and social opportunities for all. With NextGenerationEU, we are boosting employment opportunities for people with disabilities, as well as for those living in rural, remote or disadvantaged areas. We are helping more people get decent, adequate housing. And we are investing in inclusive education for children, whatever their background, situation or special needs (European Union, 2024a).

While in the Next Generation EU plan the objective of combating racism is indicated and there is a reference to the European Union's policies against discrimination (European Union, 2024b), there is no explicit reference to the issue of migration from third countries and how it should be integrated into this European Union Recovery and Resilience Plan, and there is no explicit indication in the European Union's policies against discrimination to racism against people of sub-Saharan African ancestry.

In fact, for these major issues of migration and the condition of people of sub-Saharan African ancestry, the European Union appears to be planning its recovery and resilience, looking with difficulty within itself and outside of itself at a time, as is said by many, in which it will necessarily have to make a change of pace (Camera dei Deputati – XIX Legislatura – Ufficio Rapporti con L'Unione Europea, 2024).

4. The National Recovery and Resilience Plan (NRRP) (and the National Health Equity Program (PNES)) for the Health

At the opposite, in the field of protecting the health of individuals, where Italy has created a model of high health and social value for decades, the intervention of the Next Generation EU, together with the action of the European Social Fund Plus (ESF+)[3] and the European Regional Development Fund (ERDF)[4], which constituted the new National Health Equity Program (Programma Nazionale Equità nella Salute) for Italy for the period 2021-2027 for the 7 regions of the South (Basilicata, Calabria, Campania, Molise, Puglia, Sardinia and Sicily), represents a highlight of weaknesses which, given the characteristics of the universalistic model adopted, should not have occurred.

The intervention of the Next Generation EU, together with the action of the European Social Fund Plus (ESF+) and the European Regional Development Fund (ERDF) with the National Health Equity Program, "sanctions" the Italian National Health Service as incapable of controlling and bridging the differences between the various regional health services that compose it in terms of the quality of the structures and in terms of territorial and social homogeneity in the provision of services. In particular, the Next Generation EU intervenes on the Italian National Health Service for that unrealized link with the territory established by the much criticized Decree 70 of 2015 "Regulation defining the qualitative, structural, technological and quantitative standards relating to hospital care" (which defined the hospital standard at 3.7 beds per 1000 inhabitants, beds which in times of pandemic were lacking, especially with regards to beds in the intensive care units). Decree 70/2015 underlined that

3. The European Social Fund Plus (ESF+) is the EU's main tool for investing in people, building a more social and inclusive Europe and advancing the European Pillar of Social Rights. The ESF+ helps shape policies related to employment, social matters, education, and skills across the EU. The ESF+ brings together four financing instruments which were distinct in the 2014-2020 programming period: the European Social Fund (ESF), the Fund for European Aid to the Most Deprived (FEAD), the Youth Employment Initiative and the European Program for Employment and Social Innovation (EaSI).

4. In 2021-2027, the ERDF will enable investments to make Europe and its regions: more competitive and smarter, through innovation and support to small and medium-sized businesses, as well as digitization and digital connectivity; greener, low-carbon and resilient; more connected by enhancing mobility; more social, by supporting employment, education, skills, social inclusion and equal access to healthcare, as well as by enhancing the role of culture and sustainable tourism; closer to citizens, supporting locally-led development and sustainable urban development across the EU.

the reorganization of the hospital network for which this provision is aimed will be insufficient with respect to the need to guarantee full coverage of the care needs that require hospital treatment, if, in a logic of care continuity, the theme of strengthening local structures is not addressed, the lack of which, or the lack of organization in a network, has strong repercussions on the appropriate use of the hospital.

In fact, only with the advent of the Next Generation EU and the related Italian National Recovery and Resilience Plan was it possible to review the organization of local assistance and the prevention system on the basis of new standards, in consistency with the investments envisaged by Mission 6 Component 1 of the National Recovery and Resilience Plan.

4.1. NRRP – Mission Health

The intervention of the Next Generation EU in Italy in its Mission Health has as general objectives:

- Strengthen the hospital system and, in particular, the territorial assistance network, in order to ensure homogeneity in the ability to provide integrated responses (health and social health issues), as well as equal access to care;
- Strengthen the resilience and timeliness of the health system's response to emerging infectious diseases characterized by high morbidity and mortality, as well as other health emergencies;
- Boost digital health care, design digital solutions for multidisciplinary and multi-professional care and assistance processes, as well as for proximity and communication with people;
- Promote and strengthen the field of scientific research, increasing resources for biomedical and health research, including via the promotion of equity funds and developing skills that can facilitate technology transfer;
- Provide safe, technologically advanced, digital and sustainable hospitals, also by revamping existing facilities with particular reference to high-tech equipment and digitization;
- Strengthen the country's capacity, effectiveness, resilience and equity in the face of current and future health impacts associated with environmental and climate risks;
- Enhance the technical-professional, digital and managerial skills of professionals in the National Health Service (NHS) and resolve shortages within the ranks of specialists and general practitioners.

With regard to the interventions the Mission Health consists of two components:

- Territorial healthcare assistance and telemedicine;
- Innovation, research and digitization of healthcare.

The resources deployed in the Mission for:

- Territorial healthcare assistance and telemedicine are EUR 7.5 billion plus EUR 400 million from REACT-EU;
- Innovation, research and digitization of healthcare are EUR 10.51 billion plus EUR 1.31 billion from REACT-EU.

The Total Health Mission resources are EUR 18.01 billion plus REACT-EU resources worth EUR 1.71 billion, for a total of EUR 19.72 billion.

In the first intervention: Territorial Assistance and Telemedicine the Objectives of the component are:

- Strengthening and refocusing the NHS towards a model focused on territories and social and health assistance networks;
- Overcoming the fragmentation and structural gap between the different regional health systems by ensuring homogeneity in access to care and the provision of Essential Care Levels – "LEA";
- Enhance prevention and territorial care by improving the capacity to integrate hospital services, local health services and social services, to ensure continuity of care, multiprofessional and multidisciplinary approaches, integrated hospital-domicile pathways for the whole population;
- Strengthening the country's capacity, effectiveness, resilience and equity in the face of current and future health impacts associated with environmental and climate risks, in a "One – Health" vision and in the evolution of "Planetary Health".

In all the actions of the first intervention, strong attention to gender issues is underlined.

4.2. ESF+, ERDF and The National Health Equity Program 2021-2027

Within the actions of the European ESF+ and ERDF funds, the National Health Equity Program 2021-2027 for the 7 regions of the South (Basilicata, Calabria, Campania, Molise, Puglia, Sardinia and Sicily) has four priority areas of intervention:

- the fight against health poverty, by reducing barriers to access health and social services for vulnerable people (migrants, those without income and the homeless);
- investments in mental health care where the number of local psychiatric facilities is low (Molise, Campania, Puglia, Basilicata, Sardinia) and the ability to quickly identify and take charge of the patient is low;
- gender health through the strengthening of counseling centers (in many regions of the South there is one center for every 40-65 thousand inhabitants);
- strengthening of oncological screening programs which in the South are unable to reach a satisfactory number of users.

The financial allocation of the National Health Equity Program 2021-2027 is lower than the funding of the Mission Health – Territorial healthcare assistance and telemedicine of the Italian NRRP and is divided as follows:

- Euro 185,921,025 for the National Institute for the promotion of the health of migrant populations and the fight against diseases of poverty (INMP) as the intermediate body designated for the implementation of interventions relating to the area "Countering health poverty", of of which 112,126,100.00 euros supported by the European Social Fund Plus (ESF+) and 73,794,925.00 euros supported by the European Regional Development Fund (ERDF).
- Euro 405,707,405.00, divided among the 7 recipient Regions (Basilicata, Calabria, Campania, Molise, Puglia, Sardinia and Sicily) according to the distribution method based on the access quota to the 2022 National Health Fund (Repertory of Acts no. 278/ CSR of 21 December 2022), as intermediate bodies identified by the Program in relation to the interventions envisaged in the areas:
  - Take care of your mental health;
  - Gender at the center of care;
  - Greater coverage of cancer screening;

  of which 242,744,900.00 euros supported by the European Social Fund Plus (ESF+) and 162,962,505.00 euros supported by the European Regional Development Fund (ERDF).

The participation of the European Social Fund Plus (ESF+) in the National Health Equity Program 2021-2027 falls within the objective "to help vulnerable groups access healthcare". The old European Social Fund (ESF) in the 2014-2020 funding period had as its themes: Active and healthy ageing. The new ESF+ for the 2021-2027 financing period has as its specific objective: Enhancing the equal and timely access to quality, sustainable and affordable services, including services that promote the access to housing and person-centred care including healthcare; modernizing social protection systems, including promoting access to social protection, with a particular focus on children and disadvantaged groups; improving accessibility including for persons with disabilities, effectiveness and resilience of healthcare systems and long-term care services, and for the themes, those related to Health are: Digitalisation in health care; Active and healthy ageing; Accessibility, effectiveness, and resilience of health systems; Access to Long Term Care (excl. Infrastructures).

The participation of the European Regional Development Fund (ERDF) in the National Health Equity Program 2021-2027 is part of the ERDF's objective to improve regional health infrastructure. For 2014-2020 in its program there was only one theme related to healthcare: Health Infrastructures. For 2021-2027 there are 7 themes related to healthcare: e-Health services and applications; Health infrastructures, Health equipment; Health mobile assets; Digitalisation in Health Care; Accessibility, effectiveness, and resilience of health systems (excluding infrastructure); Access to long term care (exc. infrastructures).

5. What the Italian National Health Service Has Done Since 2001

But the Italian National Health Service itself has at its foundation the protection of equity and equality in access to the services guaranteed by the National Health Service, first and foremost at the territorial level, and therefore between all the Italian Regions, to achieve equality in health. Law 833 of 1978 establishing the Italian National Health Service in article 1 states:

> The national health service is made up of the complex of functions, structures, services and activities intended for the promotion, maintenance and recovery of physical and mental health of the entire population without distinction of individual or social conditions and according to methods that ensure the equality of citizens in relation to the service.

And in article 2 it establishes that "The national health service within the scope of its competences pursues: a) overcoming territorial imbalances in the socio-health conditions of the country"[5].

To this end, in 2001 the Italian National Health Service prepared an exact codification of the services guaranteed (Essential Levels of Care – LEA) by the National Health Service itself according to the 5 principles of the LEAs:

1. the principle of the *dignity of the human person*, according to which every individual has equal dignity and equal rights, regardless of personal characteristics and the role played in society;
2. the principle of *health need*, according to which the right to healthcare is recognized for all (and only) those who are in conditions of need with respect to health;
3. the principle of *equity in access to care*, aimed at explicitly addressing social inequalities in health conditions, in the use of health services and in vulnerability to the consumption of inappropriate services;
4. the principle of the *quality of care* and its *appropriateness* with respect to specific needs;
5. the principle of *economy* in the use of resources (Dirindin, Vineis, 2004).

Then, since 2005, the Italian National Health Service has defined a system for monitoring the maintenance of Essential Levels of Care. The Regions subject to verification of these obligations are those with ordinary statute and Sicily. And today instead with the Next Generation EU and with the establishment of a new ESF+ structural fund and with the activity of the ERDF which together have led to the National Health Equity Program 2021-2027 which intervenes, I remind you, in the health services of the 7 regions of Southern Italy (Basilicata, Calabria, Campania, Molise, Puglia, Sardinia and Sicily) emerges in all its urgency that the objective for which the Italian National Health Service was born – an equal health service for all citizens and in all territories – the Italian National Health Service has failed

5. It is true that the years preceding the 2020 Covid-19 pandemic were challenging for the Italian National Health Service in terms of the availability of resources, in a period of spending review, and of extensive discussions on its financial sustainability. The debate in Italy on the concept of sustainability to be adopted to analyze and manage the Italian National Health Service was already very intense before the Covid-19 pandemic in 2020. The Permanent Hygiene and Health Commission of the Senate in the XVII Legislature 2013-2018 worked intensely on this theme and still today this work is the basis of reflections on the sustainability of the National Health Service in the post-pandemic period (Senato della Repubblica, 2018).

to guarantee it, losing the characteristics of efficiency in the use of resources to achieve individual health.

6. LEAs Monitoring

The analysis of the results of monitoring the Essential Levels of Care by the regional health services in the years just preceding 2020, the year of the Covid-19 pandemic, and those of the pandemic years highlights a particular weakness in the field of primary prevention and for the screenings for the early detection of cancers and in particular for those relating to female cancers.

6.1. Regional Scores of the LEA Grid, Trend 2012-2019

In 2019, in the monitoring of the Essential Levels of Care, with reference to the scores, 17 Regions out of 21 between Regions and Autonomous Provinces (P.A.) were evaluated positively, obtaining a score equal to or higher than 160 (minimum acceptable level) based on the LEA Grid. In particular, the ten Regions that achieve a score above 200 are: Veneto, Tuscany, Emilia Romagna, Lombardy, Marche, Umbria, Liguria, Friuli Venezia Giulia, Abruzzo and Lazio. Seven other Regions have a score between 200 and 160 (minimum acceptable level): Puglia, Piedmont, Autonomous Province of Trento, Sicily, Basilicata, Campania and Valle d'Aosta. The Autonomous Province of Bolzano, the regions of Molise, Calabria and Sardinia are characterized by scores lower than 160 (Ministry of Health – General Directorate of Health Planning, Office VI, 2021).

From the *Table 1* it emerges that in the period 2012-2019 among the regions participating in the National Health Equity Program 2021-2027 Calabria, Campania and Molise were for a long time among the non-compliant or compliant regions with commitment to the provision of the Essential Levels of Care of the National Health Service. From this grid, Basilicata appears to be in the best situation compared to the 7 regions affected by the Program.

Table 1. Regional scores of the LEA grid, trend 2012-2019

Regione	2019	2018	2017	2016	2015	2014	2013	2012
Veneto	222	222	218	209	202	189	190	193
Toscana	222	220	216	208	212	217	214	193
Emilia Romagna	221	221	218	205	205	204	204	210
Lombardia	215	215	212	198	196	193	187	184
Marche	212	206	201	192	190	192	191	165
Umbria	211	210	208	199	189	190	179	171
Liguria	206	211	195	196	194	194	187	176
Friuli Venezia Giulia*	205	206	193					
Abruzzo	204	209	202	189	182	163	152	145
Lazio	203	190	180	179	176	168	152	167
Puglia	193	189	179	169	155	162	134	140
Piemonte	188	218	221	207	205	200	201	186
P.A. Trento*	187	185	185					
Sicilia	173	171	160	163	153	170	165	157
Basilicata	172	191	189	173	170	177	146	169
Campania	168	170	153	124	106	139	136	117
Valle d'Aosta*	160	159	149					
P.A. Bolzano*	157	142	120					
Molise	150	180	167	164	156	159	140	146
Calabria	125	162	136	144	147	137	136	133
Sardegna*	111	145	140					

* Regioni non sottoposte alla Verifica adempimenti

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2021)

6.2. LEA Grid Monitoring 2019 – Primary Prevention and Screening for Female Cancers

For primary prevention, the monitoring of LEAs in 2019, the year before the pandemic, shows data of less than 95% vaccination coverage in children at 24 months per basic cycle (3 doses) (polio, diphtheria, tetanus, hepatitis B, pertussis, Hib) for 7 Italian regions distributed throughout the national territory with two regions (Sicily and P.A. Bolzano) below 92% coverage (*Table 2*). For the 2017, 2018, 2019 LEA monitoring of vaccination coverage in children at 24 months for one dose of measles, mumps, rubella (MMR) vaccine, the data are significantly worse. 10 regions are below the 95% coverage threshold and above 92%. In this group there are all 7 regions of the

South that are included in the National Health Equity Program 2021-2027. In the North, Valle d'Aosta and P.A. of Bolzano are below 92% coverage, but improving (*Table 3*). For vaccination coverage for influenza vaccination in the elderly (≥ 65 years), no Italian region reaches the target of 75% coverage. Sardinia and Calabria are among the 4 regions with coverage below 60% and not improving (*Table 4*). Again, taking into account the 3 LEA monitoring sessions 2017, 2018, 2019, the proportion of people who have carried out first level screening tests, in an organized program, for the uterine cervix, breast, colon-rectum (score[6]) presents a strong lack of homogeneity between the Centre-North of Italy and the South. The 7 Southern regions included in the National Health Equity Program 2021-2027 are essentially the only ones to be below the normal value (score equal to 9) and 4 have an unacceptable deviation with a score between 0 and 4 and 2 are with a significant deviation but improving, with scores between 5 and 6 (*Table 5*). It should be noted that the optimality threshold of the indicator is very modest, identifying as a normal value the achievement of a proportion of people who have carried out first level screening of 60% for breast cancer, 50% for cervical and colorectal cancer.

Therefore, the situation of primary prevention, but even more so of secondary prevention with screening for cervical, breast and colorectal cancer even before the pandemic was deficient or very deficient in many areas of the country and in particular in Southern Italy, despite a National Health Service based on the guarantee of Essential Levels of Care and centered on equity and equality.

6. The total score of the indicator is calculated by adding the scores of the individual screening programs to which a score ranging from 0 to 5 can be attributed:

Score	0	1	3	5
Scr. Mam.	0-5%	6-34%	35-59%	≥ 60%
Scr. Cerv.	0-5%	6-34%	35-49%	≥ 50%
Scr. Colo-rettale	0-5%	6-34%	35-49%	≥ 50%

Table 2. Vaccination coverage in children at 24 months for basic cycle (3 doses) (polio, diphtheria, tetanus, hepatitis B, pertussis, Hib) (%)

Regione	2019					
	Polio	Difterite	Tetano	Pertosse	Epatite B	Hib
Piemonte	96,0	96,0	96,0	96,0	95,9	95,8
Valle d'Aosta	93,2	93,2	93,2	93,2	93,0	93,0
Lombardia	95,9	95,8	95,8	95,8	95,7	95,7
P.A. Bolzano	81,2	81,1	81,2	81,1	81,1	81,1
P.A. Trento	94,9	94,9	94,9	94,9	94,9	94,9
Veneto	95,2	95,2	95,2	95,2	95,0	95,0
Friuli Venezia Giulia	93,4	93,4	93,4	93,4	93,0	92,8
Liguria	95,6	95,6	95,6	95,6	95,5	95,3
Emilia-Romagna	95,8	95,8	95,8	95,8	95,8	95,5
Toscana	96,8	96,8	96,8	96,8	96,5	97,2
Umbria	96,1	96,1	96,1	96,1	96,2	96,1
Marche	94,7	94,5	94,5	94,5	94,5	94,1
Lazio	95,6	95,6	95,5	95,5	95,5	95,5
Abruzzo	97,5	97,5	97,5	97,5	97,4	97,5
Molise	97,1	97,1	97,1	97,1	97,3	97,1
Campania	95,1	95,1	95,1	95,1	95,0	95,0
Puglia	94,5	94,6	94,6	94,6	94,5	94,5
Basilicata	96,6	96,6	96,6	96,6	96,6	96,6
Calabria	96,0	96,0	96,0	96,0	96,0	96,0
Sicilia	91,1	91,1	91,1	91,1	91,1	91,1
Sardegna	95,2	95,2	95,2	95,2	95,2	95,2

Indicatore 1.1 - Anno 2019

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0
Tutte ≥ 95,0 %	Tutte ≥92 %	Una < 92,0 %	Più di una < 92,0 %

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2021)

Table 3. Vaccination coverage in children at 24 months for one dose of measles, mumps, rubella (MMR) vaccine (%)

Regione	2017	2018	2019
Piemonte	94,7	94,7	95,5
Valle d'Aosta	90,3	91,3	91,5
Lombardia	93,9	94,1	95,5
P.A. Bolzano	71,8	70,8	75,5
P.A. Trento	91,6	94,3	95,5
Veneto	92,3	96,4	95,1
Friuli Venezia Giulia	86,5	91,2	92,5
Liguria	90,8	94,0	93,0
Emilia-Romagna	93,4	95,1	95,1
Toscana	93,5	95,0	96,1
Umbria	94,5	94,6	95,2
Marche	88,2	92,0	93,7
Lazio	95,3	94,9	95,7
Abruzzo	89,2	94,5	95,0
Molise	90,5	92,0	93,4
Campania	92,0	93,4	94,7
Puglia	91,1	94,2	94,4
Basilicata	92,9	93,0	92,6
Calabria	92,8	92,7	93,1
Sicilia	85,6	90,9	92,2
Sardegna	93,0	92,3	93,6

Indicatore 1.2 - Anno 2019

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0
≥ 95,0 %	92 %- 94,9 %	< 92,0 % e in aumento	< 92,0 % e non in aumento

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2021)

Table 4. Vaccination coverage for influenza vaccination in the elderly (≥65 years) (%)

Regione	2017	2018	2019
Piemonte	47,9	49,0	51,0
Valle d'Aosta	44,1	45,2	45,4
Lombardia	47,7	48,2	49,9
P.A. Bolzano	35,3	38,3	32,5
P.A. Trento	53,5	54,8	55,2
Veneto	55,1	55,6	53,9
Friuli Venezia Giulia	55,7	57,7	60,7
Liguria	50,1	50,1	53,0
Emilia-Romagna	53,3	54,7	57,4
Toscana	55,3	56,0	56,4
Umbria	63,4	64,8	64,3
Marche	50,0	51,6	56,9
Lazio	51,8	52,3	52,7
Abruzzo	49,1	52,4	55,3
Molise	61,0	61,7	65,4
Campania	57,4	60,3	62,1
Puglia	59,4	51,4	51,4
Basilicata	53,2	66,6	58,5
Calabria	61,2	59,8	61,8
Sicilia	54,3	53,0	59,4
Sardegna	44,0	46,5	46,2

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0
≥75%	60% - 74,9%	<60% e in aumento	<60% e non in aumento

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2021)

Table 5. Proportion of people who have carried out first level screening tests, in an organized program, for uterine cervix, breast, colon-rectum (score)

Regione	2017	2018	2019
Piemonte	11,0	13,0	11,0
Valle d'Aosta	15,0	15,0	15,0
Lombardia	9,0	9,0	7,0
P.A. Bolzano	9,0	9,0	11,0
P.A. Trento	15,0	15,0	15,0
Veneto	15,0	15,0	15,0
Friuli Venezia Giulia	15,0	15,0	15,0
Liguria	9,0	11,0	9,0
Emilia-Romagna	15,0	15,0	15,0
Toscana	13,0	13,0	13,0
Umbria	11,0	11,0	13,0
Marche	9,0	9,0	9,0
Lazio	9,0	9,0	9,0
Abruzzo	9,0	9,0	9,0
Molise	9,0	7,0	3,0
Campania	3,0	3,0	3,0
Puglia	4,0	4,0	4,0
Basilicata	9,0	13,0	6,0
Calabria	2,0	2,0	2,0
Sicilia	3,0	3,0	5,0
Sardegna	3,0	5,0	5,0

Valore normale 9	Scostamento minimo 6	Scostamento rilevante ma in miglioramento 3	Scostamento non accettabile 0
Score ≥9	Score 7 - 8	Score 5 - 6	Score 0 – 4

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2021)

6.3. Years 2020-2021: Monitoring of LEAs with the New Guarantee System (NSG)

Starting from 1st January 2020, the New Guarantee System (NSG) for the monitoring of healthcare came into force. The subset of "CORE" indicators, provided for by the New Guarantee System, has replaced the LEA Grid within the verification of compliance starting from the 2020 evaluation year.

There are 88 indicators identified, distributed by macro-areas:

- 16 for collective prevention and public health
- 33 for district assistance
- 24 for hospital care
- 4 context indicators for estimating healthcare needs
- 1 social equity indicator
- 10 indicators for monitoring and evaluating diagnostic-therapeutic care pathways – PDTA (COPD, heart failure, diabetes, breast cancer in women, colon cancer and rectal cancer).

Within the NSG, a subset of 22 indicators, so-called "CORE", has been identified to replace the "LEA Grid" (in force until 2019), to be used to synthetically evaluate the provision of LEAs by the Regions. These indicators are divided into three macro-areas:

- collective prevention in public health;
- district assistance;
- hospital care.

For each indicator belonging to the CORE subset, thanks to a specific valorization function, a score is calculated on a scale from 0 to 100, with the score 60 corresponding to the minimum guarantee threshold (i.e. "sufficiency"). Further scores or penalties are assigned based on the temporal and geographical variability of the indicator value. The final score is then calculated for each macro-area of assistance: unlike the LEA Grid, in fact, the new methodology does not summarize the evaluation of the Regions in a single score, but measures the global compliance with the requirements independently for each macro-area. LEA.

In order for the outcome of the global evaluation to be positive, and therefore for a Region to be "compliant", the score for all three macro-areas must be no less than 60 (so as not to allow compensation between different macro-areas).

The evaluation system for maintaining the Essential Levels of Care

becomes more stringent, enhancing the results that the Regions obtain in the three distinct macro-areas of Health Care.

The monitoring results for 2020 and 2021 with the New Guarantee System were calculated only for information purposes due to the emergency situation due to the Covid-19 pandemic and not for the purpose of evaluating the performances of the regional health services.

However, from the results of the monitoring it can be seen that for the prevention area, the NSG highlights for 2021 that Calabria and Sicily reported an insufficiency score of less than 60 points, together with the P.A. of Bolzano (*Table 6*). As regards vaccination prevention, vaccination coverage in children at 24 months for the basic cycle (polio, diphtheria, tetanus, hepatitis B, pertussis, Hib) sees Sicily and Sardinia below 60 points and therefore with insufficient performances. The 100% rating is still achieved with the achievement of 95% vaccination coverage. Regarding vaccination coverage in children at 24 months for the first dose of measles, mumps, rubella (MMR) vaccine Valle d'Aosta, P.A. of Bolzano, Calabria and Sicily obtained a score of 0 for not having achieved coverage of more than 90%, Liguria and Sardinia are below the threshold of 60 points. The maximum score of 100 is still obtained with vaccination coverage above 95%. There is no longer the indicator relating to the flu vaccine for those over 65. For the indicator relating to the proportion of people (of the target age) who have carried out first level screening tests in an organized program, for uterine cervix, breast, colorectal in 2021 with monitoring through the New Guarantee System, the defaulting regions with a score lower than 60 are now 9: Lombardy (58.23 points), Lazio (56.50), Abruzzo (58.96), Molise (58.71), Campania (21.35), Puglia (33.44), Calabria (0.00), Sicily (40.50) and Sardinia (21.00). Basilicata is now at 75.90 points (*Table 7*). The Covid years have been difficult for prevention and organized screening, but the extremely critical situation in the southern Italian regions has not substantially changed. The thresholds considered optimal to obtain 100 points are still the participation of 60% of the target population for breast cancer screening, and 50% for cervical and colorectal cancer screening.

Table 6. NSG results – CORE subset scores by area, years 2021-2017 (1/2)

Regione	2021			2020		
	Area Prevenzione	Area Distrettuale	Area Ospedaliera	Area Prevenzione	Area Distrettuale	Area Ospedaliera
Piemonte	86,05	84,47	81,36	76,08	91,26	75,05
Valle d'Aosta	45,31	49,31	52,59	74,06	56,58	59,71
Lombardia	86,84	93,09	85,33	62,02	95,02	75,59
P.A. Bolzano	51,97	68,05	80,75	51,90	57,43	66,89
P.A. Trento	92,55	79,33	96,52	88,42	78,07	93,07
Veneto	84,63	95,60	84,65	80,74	98,37	79,67
Friuli V.G.	85,32	79,42	78,22	75,63	80,35	74,06
Liguria	73,05	85,92	73,60	50,85	83,12	65,50
Emilia Romagna	90,73	95,96	94,50	89,08	95,16	89,52
Toscana	91,37	95,02	88,07	88,13	92,94	80,00
Umbria	91,97	73,64	82,31	89,64	68,55	71,61
Marche	82,62	89,38	85,90	79,01	91,68	75,05
Lazio	80,78	77,61	77,12	74,46	80,19	71,76
Abruzzo	77,74	68,46	69,25	54,03	76,94	63,47
Molise	82,99	65,40	48,55	64,21	67,12	41,94
Campania	78,37	57,52	62,68	61,53	57,14	59,08
Puglia	67,85	61,66	79,83	66,83	68,13	71,73
Basilicata	79,63	64,22	63,69	57,07	62,85	51,90
Calabria	52,96	48,51	58,52	32,73	48,18	48,44
Sicilia	45,53	62,19	75,29	43,44	62,06	69,26
Sardegna	61,63	49,34	58,71	70,79	48,95	59,26

Area Distrettuale 2021: con indicatore D04C; Area Distrettuale 2020: con indicatore D03C.

In rosso i valori inferiori a 60 punti (soglia di sufficienza), in verde i valori uguali o superiori.

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2023)

Table 6. NSG results – CORE subset scores by area, years 2021-2017 (2/2)

Regione	2019			2018			2017		
	Area Prevenzione	Area Distrettuale	Area Ospedaliera	Area Prevenzione	Area Distrettuale	Area Ospedaliera	Area Prevenzione	Area Distrettuale	Area Ospedaliera
Piemonte	91,72	88,83	85,78	93,04	88,31	85,59	92,90	84,05	84,14
Valle d'Aosta	72,16	48,09	62,59	72,30	36,70	71,54	64,12	34,52	74,38
Lombardia	91,95	89,98	86,01	89,94	83,44	79,93	86,84	77,05	77,13
P.A. Bolzano	53,78	50,89	72,79	51,86	40,60	71,38	53,37	44,82	73,97
P.A. Trento	78,63	75,06	96,98	93,02	72,90	94,18	83,56	82,45	94,75
Veneto	94,13	97,64	86,66	91,72	94,65	85,93	80,75	95,10	83,67
Friuli V.G.	80,39	78,35	80,62	73,20	76,42	82,94	53,18	74,02	80,72
Liguria	82,09	85,48	75,99	83,50	86,84	75,84	73,94	84,16	79,99
Emilia Romagna	94,41	94,51	94,66	93,26	94,32	90,70	93,03	86,82	88,51
Toscana	90,67	88,50	91,39	88,48	89,79	90,91	87,07	82,67	94,27
Umbria	95,65	69,29	87,97	93,92	67,48	87,33	92,89	67,91	80,59
Marche	89,45	85,58	82,79	82,03	76,70	77,04	69,00	78,51	69,84
Lazio	86,23	73,51	72,44	84,99	62,40	73,25	86,18	57,99	70,78
Abruzzo	82,39	79,04	73,84	86,24	74,05	68,54	66,54	63,76	67,92
Molise	76,25	67,91	48,73	79,55	44,49	44,74	74,18	31,25	40,66
Campania	78,88	63,04	60,40	74,67	64,30	58,07	72,51	55,16	44,83
Puglia	81,59	76,53	72,22	79,39	70,57	72,14	66,21	64,60	65,90
Basilicata	76,93	50,23	77,52	84,16	45,09	75,83	78,69	49,86	72,56
Calabria	59,90	55,50	47,43	64,03	58,44	47,22	65,49	47,35	50,63
Sicilia	58,18	75,20	70,47	50,76	75,64	50,60	50,20	74,87	73,05
Sardegna	78,30	61,70	66,21	75,78	34,50	64,60	76,36	35,16	63,74

In rosso i valori inferiori a 60 punti (soglia di sufficienza), in verde i valori uguali o superiori.

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2023)

Table 7. NSG results – CORE subset, prevention area, year 2021 (1/2)

Regione	P01C Copertura vaccinale nei bambini a 24 mesi per ciclo base (polio, difterite, tetano, epatite B, pertosse, Hib)		P02C Copertura vaccinale nei bambini a 24 mesi per la 1° dose di vaccino contro morbillo, parotite, rosolia (MPR)		P10Z Copertura delle principali attività riferite al controllo delle anagrafi animali, della alimentazione degli animali da reddito e della somministrazione di farmaci ai fini delle garanzie di sicurezza alimentare per il cittadino		P12Z Copertura delle principali attività di controllo per la contaminazione degli alimenti, con particolare riferimento alla ricerca di sostanze illecite, di residui di contaminanti, di farmaci, di tiofarmaci e di additivi negli alimenti di origine animale e vegetale	
	Valore Indicatore (%)	Punteggio finale	Valore Indicatore (%)	Punteggio finale	Valore Indicatore (%)	Punteggio finale	Valore Indicatore (%)	Punteggio finale
Piemonte	94,08	**84,68**	93,78	**83,79**	80,55	**74,06**	100,00	**100,00**
Valle d'Aosta	90,66	**19,77**	90,00	**0,00**	88,58	**87,77**	66,60	**33,20**
Lombardia	96,07	**100,00**	95,49	**100,00**	84,87	**79,82**	100,00	**100,00**
P.A. Bolzano	75,61	**0,00**	71,17	**0,00**	65,22	**53,62**	100,00	**100,00**
P.A. Trento	94,84	**97,91**	94,41	**92,10**	82,82	**77,10**	100,00	**100,00**
Veneto	95,48	**100,00**	95,18	**100,00**	48,90	**31,86**	99,24	**95,48**
Friuli Venezia Giulia	94,96	**100,00**	93,66	**85,12**	65,97	**54,63**	98,80	**97,60**
Liguria	93,36	**78,14**	91,32	**39,52**	74,98	**66,63**	100,00	**100,00**
Emilia Romagna	96,38	**100,00**	95,97	**100,00**	97,51	**96,68**	83,40	**66,80**
Toscana	95,98	**100,00**	95,04	**100,00**	79,00	**71,99**	98,72	**97,44**
Umbria	96,08	**100,00**	95,10	**100,00**	88,67	**81,88**	97,32	**94,64**
Marche	94,14	**88,53**	92,81	**70,74**	94,44	**92,58**	100,00	**100,00**
Lazio	95,90	**100,00**	97,64	**100,00**	64,29	**52,39**	100,00	**100,00**
Abruzzo	93,26	**73,80**	93,34	**77,91**	87,96	**86,95**	99,36	**98,72**
Molise	95,06	**100,00**	93,95	**89,06**	88,99	**85,31**	98,32	**96,64**
Campania	95,02	**100,00**	94,72	**99,28**	91,79	**89,05**	98,80	**97,60**
Puglia	92,48	**66,37**	92,44	**65,93**	83,98	**78,63**	100,00	**100,00**
Basilicata	94,18	**86,03**	92,31	**64,16**	90,02	**86,69**	100,00	**100,00**
Calabria	93,98	**83,35**	89,44	**0,00**	88,10	**84,13**	97,76	**95,52**
Sicilia	86,28	**0,00**	89,19	**0,00**	87,26	**83,01**	99,60	**99,20**
Sardegna	91,86	**55,81**	91,87	**56,20**	80,97	**74,62**	100,00	**100,00**

Fonti informative indicatori:

P01C, P02C: dati comunicati dalle Regioni

P10Z: Piattaforma VETINFO (Sistema Informativo Veterinario)

P12Z: flussi NSIS

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2023)

Table 7. NSG results – CORE subset, prevention area, year 2021 (2/2)

Regione	P14C Indicatore composito sugli stili di vita (Istat)		P15C Proporzione di persone (in età target) che hanno effettuato test di screening di primo livello in un programma organizzato, per cervice uterina, mammella, colon-retto			
	Valore indicatore (%)	Punteggio finale	Valore indicatore cervice (%)	Valore indicatore mammella (%)	Valore indicatore colon-retto (%)	Punteggio finale
Piemonte	37,52	**66,61**	48,70	57,40	49,14	**97,46**
Valle d'Aosta	36,33	**69,78**	58,87	21,11	59,71	**73,55**
Lombardia	32,84	**79,10**	9,87	55,97	38,21	**58,23**
P.A. Bolzano	30,67	**84,87**	54,82	68,30	30,83	**89,78**
P.A. Trento	31,06	**83,85**	102,35	96,95	62,51	**100,00**
Veneto	33,91	**76,23**	61,80	65,64	67,67	**100,00**
Friuli V.G.	36,59	**69,10**	91,38	56,97	55,53	**97,38**
Liguria	34,76	**73,98**	41,20	47,75	34,47	**80,49**
Emilia Romagna	35,84	**71,08**	61,91	84,10	73,62	**100,00**
Toscana	35,97	**70,75**	64,06	64,30	45,75	**97,73**
Umbria	37,52	**66,60**	79,19	71,60	42,51	**96,00**
Marche	37,69	**66,16**	33,87	43,51	29,18	**69,50**
Lazio	36,24	**70,03**	29,61	35,26	20,73	**56,90**
Abruzzo	39,08	**62,46**	30,78	33,87	23,33	**58,96**
Molise	46,53	**53,47**	28,36	30,80	25,51	**58,71**
Campania	49,47	**47,53**	19,45	20,94	5,36	**21,35**
Puglia	42,34	**57,66**	26,17	26,01	7,83	**33,44**
Basilicata	49,62	**50,38**	29,15	52,08	33,57	**75,90**
Calabria	43,47	**56,53**	7,06	2,46	0,91	**0,00**
Sicilia	44,63	**55,37**	25,60	25,95	15,56	**40,50**
Sardegna	37,87	**62,68**	20,07	19,47	9,39	**21,00**

Fonti informative indicatori:

P14C: Indagini campionarie Istat - Indagine multiscopo sulle famiglie "Aspetti della vita quotidiana"

P15C: Sistema informativo screening - dati elaborati dall'Osservatorio Nazionale Screening

Source: Ministero della Salute – Direzione Generale della Programmazione Sanitaria, Ufficio VI (2023)

7. Will the Intervention Program Financed by the Next Generation EU and by the National Health Equity Program 2021-2027 Be Enough to Change the Prevention Situation for Women's Health in Italy and in the South in Particular?

To try to answer this question, I report the summary of the analyzes developed in January 2024 by the Osservatorio Nazionale Screening (National Screening Observatory)[7] edited by Paola Mantellini, head of the S.C. Screening and secondary prevention of the Institute for the study, prevention and oncology network (ISPRO) of the Tuscany Region and director of the Osservatorio Nazionale Screening (ONS).

> Oncology screening programs are included among the essential levels of assistance (LEA – Prime Ministerial Decree 12 January 2017) and their activity is monitored through a series of analyzes carried out by the Ons and Passi surveillance. In the case of the three consolidated screenings (mammographic, cervical, colorectal), based on the new recommendations on oncological screening issued by the European Council in December 2022, the general objective is to ensure the provision of screening to at least 90% of citizens eligible in all member countries by 2025 [and the offer of a defined and free in-depth care and therapeutic path, *ed.*]. It is clear that to align with European indications it is necessary for our country to make very important changes and certainly the digital transformation in healthcare must also be able to concern oncological screening.
>
> To understand the future implementation of the planned actions it is necessary to analyze in detail the most recent data on the extension (number of people invited out of the total of those entitled in the reference year) and adherence (number of responding users out of the total users invited in the reference year) to screening programs for breast, colorectal and cervical cancer, referring to 2021 […].

7. The Osservatorio Nazionale Screening (National Screening Observatory) (ONS) was founded in 2001, with the name of National Observatory for the Prevention of Female Cancer, as a network of screening centers, thanks to the financial support of the Italian League for the Fight against Cancer (LILT). In 2005 the ONS took on its current name, expanding its competences based on the growing activation of colorectal screening programmes. The Italian Mammographic Screening Group (GISMA) and the Italian Cervical Carcinoma Group (GISCI) and, more recently, the Italian Colorectal Screening Group (GISCOR) have joined the ONS since its establishment. Since then, the ONS has worked as a technical tool to support both the Regions, for the implementation of screening programs, and the Ministry of Health, for the definition of operational methods, monitoring and evaluation of the programs. The decree of the Minister of Health of 4 August 2011 provides for the reorganization of the institutional structure of the Osservatorio Nazionale Screening and establishes its structural integration into the institutional screening governance mechanism, identifying it as a technical tool for the implementation of screening policies.

At a national level, the value of the extension stands at 85.9% for mammographic screening (range from 101.6% in the North to 58.3% in the South), at 88.3% for cervical (from 129.6% in the Center to 68.8% in the South) and 79.4% for colorectal (from 100% in the Center to 43.7% in the South). It can clearly be seen that for mammographic and cervical screening the current offer is close to the value set by Europe for 2025, while for colorectal screening we are more than 10 percentage points away from the target. The adherence data in Italy highlight, similarly to the extension, a North-South gradient. Overall participation in the mammographic program is 56.2% with important differences between macro areas (North 64.7%; Center 50.2%; South and Islands 41.3%). Participation in cervical screening is 39.2% with a range that varies from 47.8% in the North to 33.4% in the Center and 32.6% in the South and Islands. A similar trend is recorded for colorectal screening: the national value for programs with fecal occult blood testing is 38.7% with higher values in the North (47.6%) than in the Center (31.5%) and the South and Islands (23.7%). Furthermore, the positive impact of screening programs on the health status of the population is proportional to the share of people who undergo the screening test ("coverage"). The combination of data on the extension of invitations and participation by the population determines, in the regions of the South and Islands, coverage values mostly between 20 and 30%, with situations in which the data is less than 10%.

Although there are also significant participation problems in some regions of the Center, the real challenge for achieving the community objective is played out in the southern regions. The adoption of the National Health Equity Program (Pnes), whose objective is to strengthen health services and make access more equal in seven regions of the South, is the context in which to work to overcome this challenge. With regards to oncological screening, the program "aims to broaden the base of people who join it, also bringing to light the people who escape the invitation and those who, although invited, do not join". In essence, "an action is envisaged to strengthen the capacity of screening services, aimed at expanding the offer of oncology screening points and increasing participation, through the introduction of new organizational models, the promotion of effective communication methods and the adaptation of staff skills.

[…] As already mentioned, guaranteeing the invitation is not enough, for screening to be effective it is necessary for the population to participate. This means that it is essential to adopt permanent population awareness campaigns combined with a widespread and usable offer. To this end, it is important that the scientific and health community deepens its reflection on Ministerial Decree 77 of 2022 in which prevention in general and screening in particular are only marginally mentioned, and it therefore becomes necessary for these issues to be fully taken into account in the scope of the reorganization of local healthcare (Osservatorio Nazionale Screening, 2024).

8. ISS-PASSI Surveillance on Screenings for the Prevention of Cervical, Breast and Colorectal Cancer

The Passi surveillance of the Istituto Superiore di Sanità is characterized as a public health surveillance that collects, continuously and through sample surveys, information from the adult Italian population (18-69 years) on lifestyles and behavioral risk factors connected to onset of chronic non-communicable diseases and on the degree of knowledge and adherence to the intervention programs that the country is implementing for their prevention.

With data at national level (regional data are not updated on the site and must be requested from each regional coordinator of PASSI surveillance) of the PASSI surveillance sample surveys for screening for the prevention of cervical, breast and colorectal cancers for the period 2021-2022 it is possible to have information on socio-demographic aspects in addition to the regional differences already recorded with the data from the monitoring of the Essential Levels of Care. It must be underlined that the 2021-2022 data discount the effects of the Covid 19 pandemic on treatment and prevention, but with an impact now mitigated by the availability of vaccines and the extension of the vaccination campaign with a return to normal economic, work and social activities.

8.1. Cervical Screening

The PASSI 2021-2022 survey shows that in Italy the overall coverage of the preventive Pap test is high, but still insufficient in some regions, especially in southern and insular Italy, where just over one in two women carries it out in the right interval of time. Half of the women took the test as part of the programs organized by the local health authorities, while the other half took the test on their own initiative. This characteristic of the Pap test practice in Italy has some important consequences on compliance with the recommended interval and on equity. The share of women who undergo cervical screening is higher among the more educated or with greater economic resources among Italian citizens compared to foreigners, and among married or cohabiting women. Women with a lower level of education and with economic difficulties, as well as those with foreign citizenship, undertake effective prevention less frequently than others. However, these differences are very small or even non-existent in organized programs, while they are larger in screening carried out on personal initiative (*Table 8*). The invitation letter, in association with the healthcare professional's advice, is the most effective tool for increasing compliance with screening.

8.2. Mammographic Screening

The PASSI 2021-2022 data show that in Italy the share of women who undergo mammographic screening is higher among those who are more educated or with greater economic resources, among women of Italian citizenship compared to foreigners, and among married or cohabiting women. For the share of tests carried out outside of organized screening programs, greater differences are highlighted by age group, education, economic difficulty and citizenship (*Table 9*). During the Covid 19 pandemic, the greatest reductions in coverage were recorded among women with a low level of education, those with many reported economic difficulties and foreigners. Even for the share of preventive mammograms performed within organized screening programs, or other free offers from local health authorities, greater variations were highlighted among women with low education and those with foreign citizenship.

The PASSI survey highlights a key factor that must characterize mammographic screening. The effectiveness of screening promotion increases if the Local Health Autority invitation is accompanied by the advice of your trusted doctor or a healthcare professional. The invitation letter alone is not enough to guarantee women's participation in screening, while medical advice is essential.

8.3. Colorectal Screening

Fecal occult blood (SOF) testing is the most widely used preventive test for the early detection of colorectal cancer. In the two-year period 2021-2022, 38% of interviewees between 50 and 69 years of age report having done so in the two years preceding the interview. It is more common for older people (60-69 years) to undergo this test, Italian citizens than foreigners and more economically advantaged or more educated people. There is no significant gender difference (table 10).

In the two-year period 2021-2022, 64% of the target population reports having been reached by some screening promotion intervention (letter from the Local Health Autority advice from a healthcare professional, information campaign), the effectiveness of which grows as the number of received inputs increases, reaching the maximum with the combination of all interventions. On the contrary, compliance with screening is almost zero among people not reached by any promotion intervention (4%).

From these summary data on the influence of people's sociodemographic characteristics on adherence to screening for early detection of cervical, breast and colorectal cancers, it emerges that structures closer to citizens

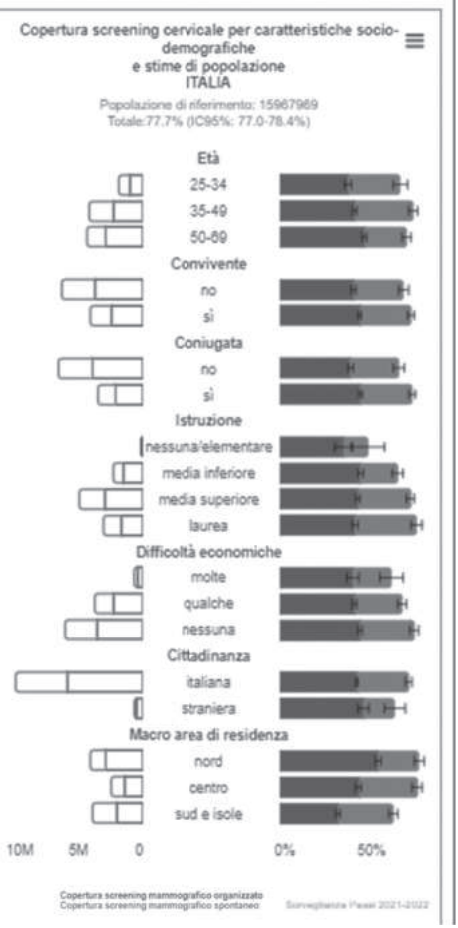
in the area (NRRP) and interventions to promote access to care and both primary and secondary prevention (screening) in the regions of Southern Italy especially for the disadvantaged population (National Health Equity Program 2021-2027) can significantly change the health results obtained. Even though these interventions are non-permanent and should have been decided and implemented in previous years by the National Health Service in compliance with its founding principles.

Table 8. Istituto Superiore di Sanità, PASSI Surveillance, data for Italy – Cervical screening coverage, years 2021-2022

Copertura screening cervicale

Copertura screening cervicale totale		ITALIA n = 20182		
		%	IC95% inf	IC95% sup
Età	25-34	73.2	71.4	75.0
	35-49	80.8	79.7	81.8
	50-64	77.0	75.8	78.1
Convivente	no	75.1	73.8	76.4
	sì	79.3	78.4	80.2
Coniugata	no	72.3	70.8	73.7
	sì	80.3	79.5	81.1
Istruzione	nessuna / elementare	53.8	48.5	59.0
	media inferiore	71.7	69.9	73.4
	media superiore	79.1	78.0	80.1
	laurea	83.0	81.6	84.2
Difficoltà economiche	molte	67.6	64.4	70.7
	qualche	74.2	72.9	75.5
	nessuna	81.4	80.4	82.3
Cittadinanza	italiana	78.4	77.6	79.1
	straniera	69.7	66.4	72.7
Macro area di residenza	nord	84.1	82.9	85.2
	centro	83.2	81.9	84.3
	sud e isole	69.2	67.9	70.5

Copertura screening cervicale organizzato		ITALIA n = 20182		
		%	IC95% inf	IC95% sup
Età	25-34	40.7	38.7	42.8
	35-49	45.1	43.7	46.5
	50-64	50.8	49.4	52.2
Convivente	no	44.4	42.9	45.9
	sì	48.1	47.0	49.2
Coniugata	no	42.6	40.9	44.3
	sì	48.6	47.6	49.7



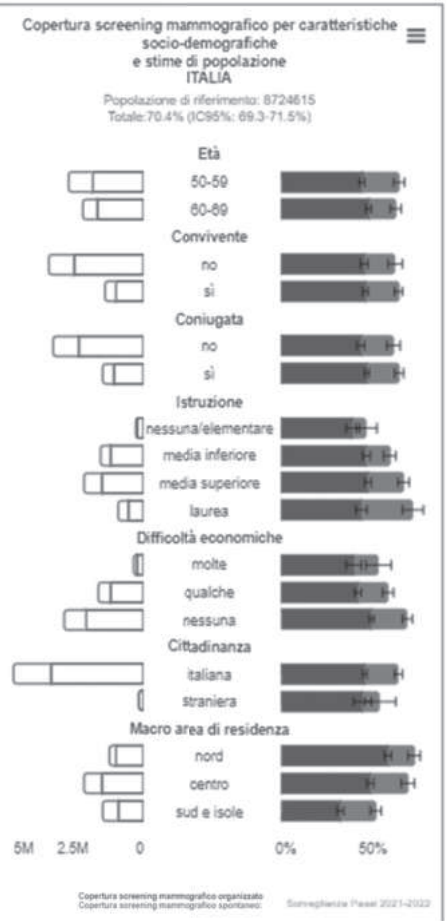
Source: Istituto Superiore di Sanità (2024a)

Table 9. Istituto Superiore di Sanità, PASSI Surveillance, data for Italy – Mammographic screening coverage, years 2021-2022

Copertura screening mammografico

Copertura screening mammografico totale		ITALIA n = 11292		
		%	IC95% inf	IC95% sup
Età	50-59	71.4	69.9	72.9
	60-69	69.2	67.6	70.8
Convivente	no	69.0	66.8	71.1
	si	71.1	69.8	72.3
Coniugata	no	67.9	65.6	70.0
	si	71.6	70.3	72.8
Istruzione	nessuna / elementare	51.5	47.4	55.6
	media inferiore	65.9	63.9	67.9
	media superiore	73.9	72.2	75.5
	laurea	79.6	77.0	82.0
Difficoltà economiche	molte	58.6	54.0	63.1
	qualche	64.6	62.7	66.5
	nessuna	76.1	74.7	77.4
Cittadinanza	italiana	70.9	69.8	72.0
	straniera	59.4	53.9	64.6
Macro area di residenza	nord	80.3	78.6	81.9
	centro	76.5	74.6	78.2
	sud e isole	57.9	56.0	59.9

Copertura screening mammografico organizzato		ITALIA n = 11292		
		%	IC95% inf	IC95% sup
Età	50-59	48.6	47.0	50.3
	60-69	52.7	51.0	54.5
Convivente	no	50.2	47.9	52.5
	si	50.7	49.3	52.1
Coniugata	no	48.0	45.7	50.3
	si	51.6	50.2	53.1
Istruzione	nessuna / elementare	42.8	38.8	46.9

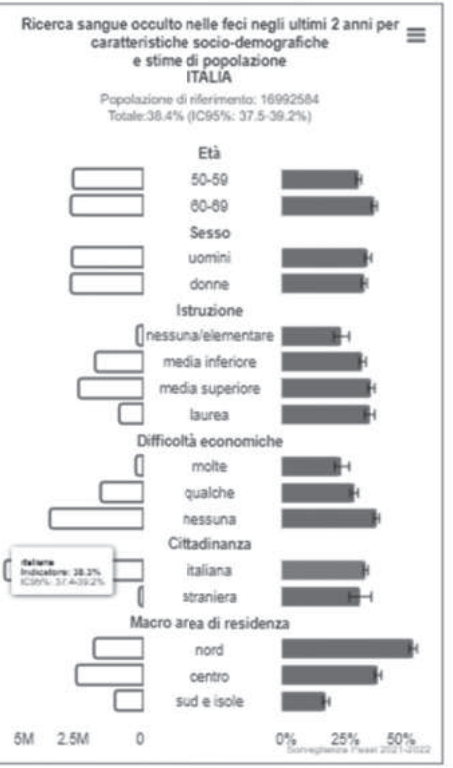


Source: Istituto Superiore di Sanità (2024b)

Table 10. Istituto Superiore di Sanità, PASSI Surveillance, data for Italy – Colorectal screening coverage, years 2021-2022

Ricerca sangue occulto nelle feci negli ultimi 2 anni

		ITALIA n = 19512		
		%	IC95% inf	IC95% sup
Età	50-59	35.1	33.9	36.4
	60-69	42.2	40.9	43.5
Sesso	uomini	39.3	38.0	40.6
	donne	37.5	36.4	38.6
Istruzione	nessuna / elementare	27.1	23.8	30.6
	media inferiore	36.6	35.1	38.1
	media superiore	40.8	39.3	42.3
	laurea	40.2	37.8	42.5
Difficoltà economiche	molte	27.4	24.2	30.8
	qualche	33.1	31.5	34.8
	nessuna	43.0	41.9	44.2
Cittadinanza	italiana	38.3	37.4	39.2
	straniera	35.6	30.7	40.8
Macro area di residenza	nord	59.7	58.0	61.3
	centro	43.9	42.3	45.5
	sud e isole	20.3	19.0	21.7



Source: Istituto Superiore di Sanità (2024c)

9. Conclusions

It will gradually be possible to evaluate the effects of the interventions carried out in Italy with the Italian National Recovery and Resilience Plan and with the National Health Equity Program 2021-2027, as many of the projects are still in an initial phase.

But these European intervention programs are expected to end between 2026 and 2027 and therefore together with the development of the NRRP and PNES 2021-2027 projects, the Italian National Health Service will have to find its own innovative and long-term strategy to obtain the strengthening of prevention and of gender services and strategies, guaranteeing homogeneity

of structures and access for all territories of the Country, above all by repairing the shortcomings in health protection in the regions of Southern Italy present since the establishment of the Service in 1978 and highlighted in on a continuous basis by the monitoring instituted after the advent of healthcare federalism in 2001.

Once again for Italy, and in this case for the only institution which, given its founding characteristics, should not have needed it, also a European emergency intervention after a pandemic and an exceptional European structural intervention for the protection of disadvantaged groups touch crucial and sensitive points of our National Health Service and can change its evolution perspective in guaranteeing equity and protecting gender needs.

However, it should be remembered that at the same time as the implementation of the equity and gender health promotion measures (unprecedented for Italy) of the Next Generation EU and the National Health Equity Program 2021-2027, Italy is internally debating these recent years on differentiated autonomy[8] for its administrative regions with ordinary statute.

November 2024

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8. Article 116, third paragraph of the Italian Constitution provides for the possibility of attributing particular forms and conditions of autonomy to the Regions with ordinary statute (so-called "differentiated regionalism" or "asymmetric regionalism", as it allows some Regions to endow themselves with powers different from the others), without prejudice to the particular forms enjoyed by the Regions with special statute (art. 116, first paragraph). Text available at: *temi.camera.it/leg17/temi/lautonomia_differenziata_delle_regioni_a_statuto_ordinario*.

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La passione per le conoscenze

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The work originates from the analysis of a concrete case study concerning the metropolitan area of the city of Bologna and the solutions adopted after 2010 by the local health authorities to address the problems of waiting lists (and the control of spending) for the individual services of early detection of breast cancer, essentially redirecting the services toward the screening of public health.

The papers highlight the characteristics of this reorganization, the implications on the maintenance of the founding principles of the Italian National Health Service, specifically for equity, and the costs directly borne by women to pay for services previously offered. The control systems of the organization and provision of the services within the National Health Service are investigated and their effectiveness or inability to protect the founding principles are highlighted. Through the data (accessed as citizen in Generalized Civic Access) on the access to the mammographic services, the choices of women and how they have dealt with the reorganization of the offer in Bologna were studied up to 2016. The effect of this reorganization on the access to the mammographic services by women was compared with external shocks that occurred at the same time.

The book closes with a paper on the current role of the Italian National Recovery and Resilience Plan 2021-2026 and the National Health Equity Program 2021-2027 for women's health and in particular for the early detection of breast cancer.

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