



Case series:

SYSTEMATIC REVIEW: AN APPROACH TO IDENTIFYING HEALTH INEQUALITIES THROUGH CASE STUDIES

Palabras clave: Equidad en salud; Desigualdades en la atención en salud; Reportes de caso.

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ABSTRACT

Introduction: Health inequalities, among other factors, reflect the wellbeing level of a population. Interventions aimed at eliminating or preventing such inequalities require an understanding of their origins.

Objective: To perform a systematic review to identify case studies reporting health inequalities worldwide.

Methodology: Case reports, case studies and case series written in English, Spanish and Portuguese reporting health inequalities were included. Databases like Medline and EMBASE, and grey literature sources such as LILACS, OpenGrey, Google, and others were included.

Results: Initially, the search produced 1272 articles. 139 articles were selected by their title, while, based on their abstract, 28 articles were chosen for full text reading. Finally, 23 articles were included. Gender difference was the most frequent factor in terms of health inequalities (23.2%), followed by socio economic condition (20%), belonging to a migrant population (13.3%), ethnic origin (13.3%), age (10%), geographic origin (3.3%), and others (16.6%).

Discussion: This approach, which is based on reviewing case reports to study health inequalities, contrasts with the majority of the studies carried out in this field. This research proposes to study inequalities specific to population groups that suffer such inequalities within communities in a particular geographic area and are not able to access to optimal health services.

INTRODUCTION

Health inequities are differences in health that are “avoidable, unfair, and unjust”. The latter occur when systematic differences in social, economic, demographic or geographic scenarios are present in one or more aspects of health across populations or population groups (1). However, other authors have defined equity in health on the basis that “resource allocation and access [to health] are determined by health needs” (2).

Inequalities in health, among other things, show people’s wellbeing level and the resources available to them (3), which means that the greater the inequality in health in a group, the greater the probability of having a low level of wellbeing, high rates of morbidity and mortality, and insufficient or inequitably distributed resources (4,5). This topic has been studied both in Latin America (6,7,8) and around the world (9,10,11), with the objective of modifying public policies regarding interventions in health determinants and proposing “Health in All Policies” (12).

Although mortality rates in the 20th century notably decreased in all countries (especially First World countries), inequalities in mortality by social class between countries and between social classes have increased (13). Even in countries with high revenues, inequalities can be found depending on geographic location (14). Society changes, diseases vary, and health services expand and improve, but the gradient of unfairness and avoidable health differences constantly increases (15). Frequently, the so-called “inverse care law” comes into play, that is, often the quality of health care is inversely related to the needs of the population (16).

Case reports have become a valuable tool when describing, evaluating and comparing

certain populations. Case reports have also been and continue to be a rich and constant source of learning, research problems and questions, which makes them the “first level of evidence” for later research and interventions on a larger scale **(17)**.

A conceptual definition of health inequalities is insufficient when attempting to understand issues in health that derive from these inequalities. Thus, a deeper understanding on how they are generated and the type of events that may lead to their appearance is necessary **(18, 19)**. Additionally, they can be presented from an access to services perspective: horizontal inequalities —when the problem lies in the lack of access to equal resources in a population with given needs— or, on the contrary, vertical inequalities —when they show up among individuals who, due to having greater needs, in theory, should receive more resources, something that never happens— **(20)**.

There are many indexes that measure inequalities. One of them is the Gini coefficient, which measures to what extent an economy is inconsistent with a perfectly equitable distribution. Another important index is the Gender Inequality Index, which reflects inequality between genders in three dimensions: reproductive health, empowerment and labor market. For example, the result obtained from the Gender Inequality Index for the world was 0.451 in 2014, while in Colombia it was 0.460 **(21)**. This index shows a higher inequality between genders in Colombia when compared to the rest of the world. The inequity-in-health index was developed with the intention of measuring this kind of inequities based on the Millennium Development Goals, established in September 2000 **(22)**.

Although, the study of inequalities and inequities in health has been focused on conceptual frameworks, the analysis of indexes

and indicators is a way to measure them, as well as to understand the role of determinants in health. Furthermore, it is not well known how much information on inequities in health has been reported through case studies or case reports. Therefore, the objective of this study is to perform a systematic review that identifies case studies reporting health inequalities worldwide.

METHODOLOGY

Inclusion and exclusion criteria

In this study a qualitative systematic review was performed, presenting the evidence descriptively in accordance with the guidelines established in PRISMA **(23)**. As a unit of study, individuals in a situation of inequality in terms of health were considered. Case reports, case studies and case series reporting inequalities or inequities in health were included.

Among excluded articles are those that were not case reports, case series or case studies; those that reported health inequalities in non-human populations; papers written in languages other than English, Spanish, or Portuguese; articles with no relation to the objective of this review, and articles with incomplete information (title or abstract).

Sources of information

The searching sources that were used include OVID, EMBASE and other sources for finding scholarly articles such as Google Scholar, LILACS, and OpenGrey. Searches were performed using a series of terms under the PICOT model for research questions. The terms used include health, inequity, inequality, marginalization, primary health care, public policy, justice, coverage, exclusion, service,

access, difference, disability and quality of life. These terms were used in relation to population, intervention, results, and treatment (Annex 1).

Boolean operators were used together with controlled (Emtree, MeSH) and uncontrolled terms. Truncators were also used to include synonyms, acronyms and spelling variations of each term.

Medline database was only accessed through the OVID search engine. Searches in EMBASE were restricted to only those studies contained in this database. The search of grey literature was performed with LILACS, Open-Grey, and the Google search engine by using Spanish-language terms.

Search strategies

Searches in electronic databases and grey literature were performed in July 2015. The work was distributed as follows:

- Two researchers (CAA and AAM) performed searches in grey literature.
- One researcher (RAG) searched in Medline.
- Three researchers (AMT, MCN, LAP) searched in EMBASE.

Articles deriving from the initial search at Google were obtained by combining search terms randomly while respecting the PICOT question. No filters were applied.

Study selection

Independently, and taking the inclusion and exclusion criteria into account, each researcher, based on the title and abstract of each paper, made a selection of the articles consulted

in the search source assigned to them. A table was made in order to list the articles selected, thus eliminating repeated titles.

Later, the researchers were paired up randomly to review the articles that were selected by performing a full reading of these texts while considering the inclusion and exclusion criteria.

Disagreements were solved through a consensus decision and, in cases where a consensus was not reached, a third reviewer decided if the article should be included or not.

Data collection and analysis

An Excel table was created with an established format in order to show the main characteristics of each study. Each pair of researchers filled out the table independently. Once finished, the tables were compared in order to solve disagreements and unify the results through the participation of a third researcher (ACV). These disagreements were resolved through a consensus.

Bias was measured in relation to the selection, procedures performed during the research and evident conflicts related to financing or resource sources. The bias was classified into high risk, low risk and unclear risk categories. High risk category was chosen when the article presented problems in terms of providing the same guarantees among the different cases studied. Low risk was chosen when the article clearly showed its financing, and its methodology did not favor one result from a case report over the obtained in another report. Unclear risk was selected when methodology and financing were not included in the paper and therefore the guarantees with respect to its writing were not clarified.

Quality of the systematic review

The AMSTAR criteria (24) were used as a tool for measuring this systematic review. Scores in the AMSTAR from 7 and higher obtained in the evaluation of the quality of systematic reviews are considered as good quality. These criteria provided a favorable score, which proves this review as a valid study. In general terms, it is necessary to point out that the research question and the inclusion criteria were established before starting the review. Also,

two independent individuals were involved in the study selection and data extraction, while disagreements were solved afterwards.

RESULTS

A total of 23 articles were selected since they complied with the abovementioned inclusion and exclusion criteria. Below (Figure 1) it is presented a flow diagram in which the selection process of the studies in different databases is described in detail.

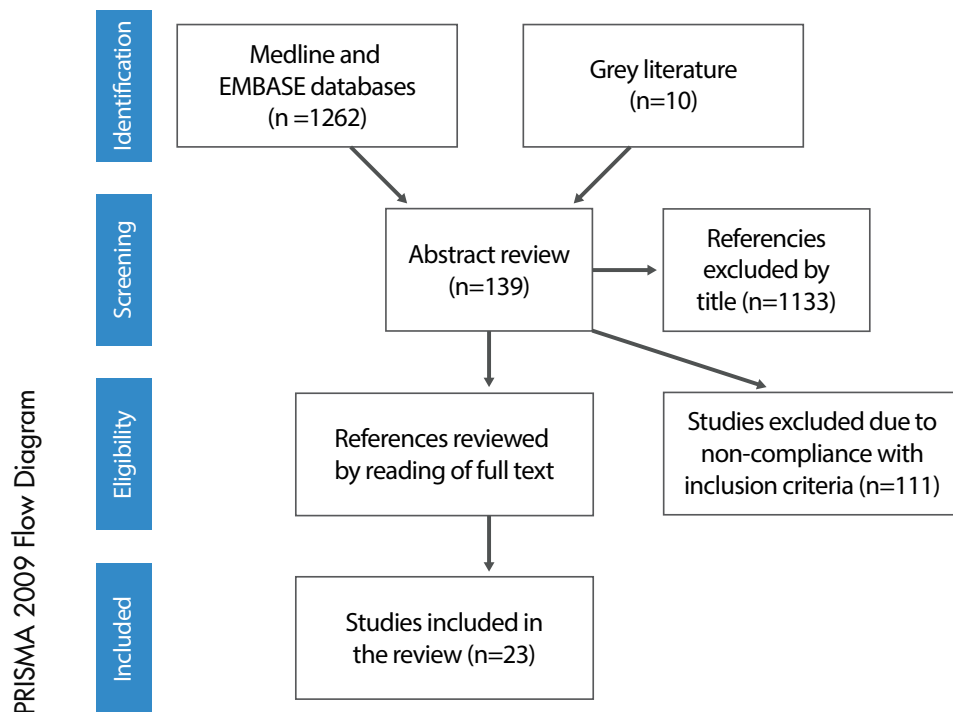


Fig 1. Flow diagram of the studies included in the review.

Source: Own elaboration based on the data obtained in the study

1272 articles were found in the initial search. The inclusion and exclusion criteria previously described were applied to them. 139 articles were selected based on their ti-

tles. Then, based on their abstracts, 28 articles were chosen for a complete reading. Finally, 23 of 28 were included in the review.

Description of the studies

Through this review it was possible to demonstrate different types of inequalities in health both in developed and developing countries, as it can be seen in Table 1.

Table 1. Main characteristics of the studies included.

Authors and year of publication	Title	Studied countries	Type of study	Population in condition of inequality	Inequality reported	Qualitative evaluation of bias
Chatty D, Mansour N, Yassin N. 2013 (25)	Bedouin in Lebanon: Social discrimination, political exclusion, and compromised health care	Lebanon	Case study	Nationalized population	Unequal access to health systems experienced by the non-nationalized population.	Low risk of bias
Abadia CE, Oviedo DG. 2009 (26)	Bureaucratic Itineraries in Colombia. A theoretical and methodological tool to assess managed-care health care systems	Colombia	Case study	Population with socio-economic differences	Differences in health care based on health insurance plan.	Unclear risk of bias
Brimacombe MB, Heller DS, Zamudio S. 2007 (27)	Comparison of fetal demise case series drawn from socioeconomically distinct counties in New Jersey	USA	Case series	Gestating women	Socio-economic inequalities between two counties and their implications on the number of stillbirths.	High risk of bias
Yang JS. 2008 (28)	Contextualizing immigrant access to health resources	USA	Case study	Immigrant population	Unequal access to health systems experienced by the Chinese immigrant population in San Francisco, USA	Unclear risk of bias
Sypek S, Clugston G, Phillips C. 2008 (29)	Critical health infrastructure for refugee resettlement in rural Australia: case study of four rural towns	Australia	Case study	Immigrant population	Access to health services among the refugee population in rural Australia.	Low risk of bias
Karam-Calderón MA, Bustamante-Montes P, Campuzano-González M, Camarena Pliego A. 2007 (30)	Social aspects of maternal mortality. A case study in the State of Mexico, Mexico	Mexico	Case study	Gestating women	Socio-economic inequalities with an effect on maternal mortality.	Unclear risk of bias

Bogenschutz M. 2014 (31)	"We Find a Way": Challenges and facilitators for health care access among immigrants and refugees with intellectual and developmental disabilities	USA	Case study	Migrant population with disabilities	Challenges that immigrants with disabilities face in order to access health services.	Unclear risk of bias
Källander K, Hildenwall H, Waiswa P, Galwango E, Peterson S, Pariyo G. 2008 (32)	Delayed care seeking for fatal pneumonia in children aged under five years in Uganda: a case-series study	Uganda	Case series	Children between 1 and 59 months old	Delay in access to health services leading to infant mortality due to pneumonia.	Low risk of bias
Hacker J, Stanistreet D. 2004 (33)	Equity in waiting times for two surgical specialties: a case study at a hospital in the North West of England	England	Case study	Women, elderly adults and persons with a low socio-economic level.	Women, the elderly and those with a low socio-economic level experience longer waiting times for procedures in areas such as orthopedics and ophthalmology. Non-conclusive results with respect to ethnicity are provided.	Low risk of bias
Harrington BE, Smith KE, Hunter DJ, Marks L, Blackman TJ, McKee L et al. 2009 (34)	Health inequalities in England, Scotland and Wales: stakeholders' accounts and policy compared	England, Wales and Scotland	Case series	General population.	Starting in 2003-2005, the three countries needed to consider lifestyle and individual responsibility when assigning clinical priority. Access to health services was an important factor in health inequalities.	Unclear risk of bias
Furler J, Harris E, Harris M, Naccarella L, Young D, Snowdon T. 2007 (35)	Health inequalities, physician citizens and professional medical associations: an Australian case study	Australia	Case study	Medical students and physicians	Results indicate that even in areas of professional obligation there was a tendency to overcome financial barriers to improve access to health care.	Unclear risk of bias
Oosterhoff P, Anh NT, Yen PN, Wright P, Hardon A. 2008 (36)	HIV-positive mothers in Viet Nam: using their status to build support groups and access essential services.	Vietnam	Case study	HIV-positive mothers and their children	Access to on-time care for both the mother and her child.	Unclear risk of bias

Authors and year of publication	Title	Studied countries	Type of study	Population in condition of inequality	Inequality reported	Qualitative evaluation of bias
Campbell J, Buchan J, Cometto G, David B, Dussault G, Fogstad H et al. 2013 (37)	Human resources for health and universal health coverage: fostering equity and effective coverage	Brazil, Ghana, Mexico, and Thailand	Case study	General population	The study demonstrates that with an increase in health personnel, maternal and newborn health numbers improved considerably	Unclear risk of bias
Mumtaz Z, Salway S, Shanner L, Bhatti A, Laing L. 2011 (38)	Maternal deaths in Pakistan: intersection of gender, caste and social exclusion	Pakistan	Case study	Women and children	It assesses the inequality regarding the access to fuel for domestic chores in a rural area. It associates exposure to air pollution with mothers' health and low weights in newborns.	Low risk of bias
El Arifeen S, Hill K, Ahsan KZ, Jamil K, Nahar Q, Streatfield PK. 2014 (39)	Maternal mortality in Bangladesh: a Countdown to 2015 country case study	Bangladesh	Case series	2 gestating women	Two gestating women that belonged to a low-income caste did not get proper care for complications in childbirth, which in turn caused their deaths.	Unclear risk of bias
Crawley J, Kane D, Atkinson-Plato L, Hamilton M, Dobson K, Watson J. 2013 (40)	Needs of the hidden homeless- No longer hidden: a pilot study	Canada	Case studies	Individuals experiencing a socio-economic inequality (drug addicts)	Inequity in access to health services due to the stigma of having an addiction to psychoactive substances.	Unclear in the article
Zoidze A, Rukhazde N, Chkhatarashvili K, Gotsadze G. 2013 (41)	Promoting universal financial protection: health insurance for the poor in Georgia - a case study	Georgia	Case studies	Individuals with socio-economic inequalities	Total expenses and costs of hospitalizing people and those resulting from ambulatory care when going from private insurance to "medical insurance for the poor"	Unclear in the article
Mumtaz Z, Levay A, Bhatti A, Salway S. 2013 (42)	Signalling, status and inequities in maternal healthcare use in Punjab, Pakistan	Pakistan	Case studies	Women with socio-economic differences	Inequalities in health care in pregnant women residing in a rural area with a strong hierarchy	Unclear in the article
Harper-Bulman K; McCourt C. 2002 (43)	Somali refugee women's experiences of maternity care in west London: a case study	West London	Case studies	Women discriminated because of their ethnicity and their condition as migrants	Differential access to health services in an ethnic minority of Somali gestating women in London.	High risk of bias

Y, Xiong X, Xue Q, Yao L, Luo F, Xiang L. 2013 (44)	The impact of medical insurance policies on the hospitalization services utilization of people with schizophrenia: A case study in Changsha, China	China	Case studies	Urban population	The study reports changes in health care that may occur in a single population treated by different companies that provide medical care in China	Low risk of bias
van Beurden E, Lefevbre C, James R. 1991 (45)	Transferring community-based interventions to new settings: a case study in heart health cholesterol testing from urban USA to rural Australia	Pawtucket, USA / North Coast, Australia	Case studies	Chronic patients coming from a specific geographical origin	Inequalities in health care for chronic diseases between rural and urban populations are reported.	High risk of bias
Türkkan A, Aytekin H. 2009 (46)	Socioeconomic and health inequality in two regions of Turkey	Bursa, Turkey	Case studies	People with socio-economic inequalities	The study states that in the city of Bursa the health of those who live in areas with a lower socio-economic level is worse than those living in the most prosperous areas.	Low risk of bias
de Andrade LO, Pellegrini Filho A, Solar O, Rigoli F, de Salazar LM, Serrate PC et al. 2015 (47)	Social determinants of health, universal health coverage, and sustainable development: case studies from Latin American countries. Universal health coverage in Latin America	Brasil, Chile, Colombia and Cuba.	Case studies	General population	The article presents differences between countries regarding the implementation of public policies for the control of contagious diseases, the improvement in terms of experience, and the results obtained from early childhood development and conditional monetary transfers aimed at guaranteeing health rights, education and the easing of poverty.	Low risk of bias

Source: Own elaboration based on the data obtained in the study.

As seen in Table 1, the following inequalities in health stand out: tardiness in the provision of the requested care (33), difficulties in accessing primary health care (37) and difficulties in accessing care with the necessary complexity level to attend to special situations

(42). Additionally, differences in the provision of health services for vulnerable populations in both public and private sectors were observed (25). In other studies, different types of approaches to public policies with respect to inequities in health were found, which shows a

slight reduction in inequities where there was a larger access to health coverage and quality primary care **(27,34)**. In general, inequities continuity among vulnerable populations was proved.

In developed countries, cases of inequities were mainly related to the lack of health care access in migrant population **(28,29)** due to language limitations or their exclusion by health administrators or health providers because of their ethnicity or their condition as illegal immigrants with a lower socio-economic level **(43)**. Among the non-migrant population, inequities in terms of health care were reported as being caused by differences in economic revenues, type of health insurance **(41)** and public policies that do not adapt to the social differences between the individuals of a population **(45)**. In addition, health inequalities in populations with some sort of disability —such as physical and mental disabilities— or dependency on psychoactive substances were shown **(40)**.

In developing countries, in particular, inequalities related to socio-economic level **(26,45)** and lower access to health services in populations located in sparsely inhabited areas far from large cities were reported. These factors were linked to cultural conditioners that increase inequity, especially in terms of access to quality services for women and children. The increase in mortality from both treatable and preventable diseases was very worrying **(31,36,37)**. Several articles reported differences in timely access to the health system among pregnant women as an important indicator of inequality **(30,42)**. Others reported favorable changes in maternal mortality through the study of inequities in health as a determining factor **(37,39)**.

Table 2 shows the percentages of the populations that experienced inequities in health according to the articles included in this review. Table 3 includes the criteria used to exclude articles in the last round of exclusions.

Table 2. Populations suffering inequities in health.

Population in condition of inequity	Number of articles where the population was the object of an inequity*	Percentage
Gender	7	23.20%
Socio-economic level	6	20%
Others	5	16.60%
Ethnic group	4	13.30%
Migrant population	4	13.30%
Age	3	10%
Geographical origin	1	3.30%
Level of education	0	0%

Source: Own elaboration based on the data obtained in the study.

Note: The same article could have been included in more than one condition of inequity. Categories of inequity are not mutually exclusive.

Table 3. Excluded studies.

Short reference	Reason for exclusion
De Brouwere V, Richard F, Witter S. 2010 (48)	The articles were not case studies, case reports, case series or they had incomplete information.
Padhi BK, Padhy PK, Jain VK. 2010 (49)	
Stolt R, Winblad U. 2009 (50)	
Maberley D, Hollands H, Chang A, Adilman S, Chakraborti B, Kliever G. 2007 (51)	
Carmichael A, Williams HE. 1983 (52)	

Source: Own elaboration based on the data obtained in the study.

Assessment of risk of bias

Each study classification can be found in Table 1. In general terms, the studies showed an unclear risk of bias since most of them did not include complete information on their financing and the methodologies used by the researchers.

DISCUSSION

The identification of inequalities in health in global population, and the conditions that predispose them, is an object of study in the new millennium given the need of analyzing the countries' performance in relation to the Millennium Development Goals. Thus, we attempted to include case studies, case reports and case series from all over the world published in different databases. A search criteria that follow the specifications of PRISMA was used and predetermined inclusion and exclusion criteria were applied. This study shows that there are researchers publishing case studies as a way to point out inequities in health in specific populations worldwide.

23 case studies, case reports and case series reporting inequalities in health were included, while several types of populations that have been exposed to some sort of inequity were identified. After comparing inequalities between developed and developing countries,

notable differences in the equitable access to health care became evident. It was observed that inequalities were caused by inadequate public policies and different types of health systems, in addition to difficult cultural and geographical conditions. Populations identified in a situation of inequality can be associated to several factors that include: gender (23.2%), low socio-economic condition (20%), immigrant condition (13.3%), belonging to an ethnic group (13.3%), age (10%), geographical origin (3.3%), and other factors (including health care providers and incapacitating diseases) (16.6%). Several studies around the world, carried out with other methodologies, also have shown that these indicators are related to inequalities in health **(52,53,54,55,56)**.

Other studies, including more case reports, are requested to show the role of inequities in health in the wellbeing of the population, even more when indexes, trends and indicators show persistence or even an increasing tendency in some countries **(57)**, and when equity is in the common language of politicians and decision makers in such countries.

Agreements and disagreements with previous studies

No systematic reviews of case reports, case series and/or studies describing inequalities in

health were found, therefore, this study presents a new way to perform searches on inequalities in health researches: through case studies.

Applicability of the results

The results of this review provide a way to approach the gaps that exist in different health systems (26). In the Colombian context, it is possible to identify the inequalities in health described in this review, although studies carried out with different methodologies have also shown inequalities in our country (58, 59, 60). This information may be important to identify the needs of the Colombian population, to propose interventions with positive impacts and to adapt and give place to public policies that aim to mitigate exclusion and to avoid vulnerability in the population.

CONCLUSIONS

This systematic review allows to bring visibility to health inequalities in systems around the world, some of which are rarely described in regular research. Likewise, it makes a decisive contribution to health since, in addition to identifying inequalities in health, it highlights the approaches adopted by the main societal actors in emerging and developed countries in terms of inequality, as observed in the results and discussion previously described.

This study emphasizes the fact that in the very 21st century, case reports, case studies and case series show a noteworthy inequality in access to health care related to gender and low socio-economic condition, despite the global policies established to ensure equal treatment.

Most of these studies are sponsored by NGOs or third party countries. Reason why it is possible to infer a probable disinterest of

the country or region where the inequities in health care are found. The inequalities in health identified were largely determined by a socio-economic level factor that led to a differential access to health services, both primary and specialized. Special interest should be taken in public policies in order to reduce the existing social and economic gaps through effective interventions that account for the population in a situation of inequity in terms of health care availability. Furthermore, public policies and other sectors apart from the health sector should also be included in the restructuration of the current Colombian health system. However, more studies and strategies for identifying and reducing socio-economic inequalities in a greater proportion are needed. More typification of the shortcomings of current health services is also necessary.

CONFLICTS OF INTERESTS

None stated by the authors.

DECLARATION OF TRANSPARENCY

The lead author* affirms that this manuscript is an honest, accurate and transparent account of the study reported; that no important aspects of it have been omitted, and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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ANEX 1

LILACS: Salud AND equidad AND inequidad

EMBASE:

Descriptor number	Keyword
1	'Social'
2	Social:ab,ti
3	Marginalization
4	Marginalization:ab,ti
5	Inequality
6	Inequality:ab,ti
7	Inequity
8	Inequity:ab,ti
9	Health/exp
10	Health:ab,ti
11	Primary health care / exp
12	(Primary health care):ab,ti
13	Public policy / exp
14	(public policy).ab,ti
15	Coverage
16	Coverage: ab,ti
17	Exclusion
18	Exclusion: ab,ti
19	Service
20	Service.ab,ti
21	Justice/exp
22	Justice:ab,ti
23	Access
24	Access:ab,ti
25	Difference
26	Difference:ab,ti
27	Disability/exp
28	Disability:ab,ti
29	Quality of life/exp
30	(quality of life):ab,ti
31	Case series /exp
32	(case series):ab,ti

33	Case:ab,ti
34	Series:ab,ti
35	Case report /exp
36	(case report):ab,ti
37	Report.ab,ti
38	Or/#1 - #10
39	Or/#11-#22
40	Or/#23 - #28
41	#29 OR #30
42	Or/ #31 - #37
43	AND / #38 - #42

Medline

Descriptor number	Keyword
1	Exp /health
2	Marginalization.tw
3	Inequit\$.tw
4	Inequalit\$.tw
5	1 or 2 or 3 or 4
6	Coverage.tw
7	Exclusión.tw
8	Service.tw
9	Justice.tw
10	Public policy.tw
11	Primary health care.tw
12	6 or 7 or 8 or 9 or 10 or 11
13	Access.tw
14	Difference.tw
15	13 or 14
16	Disabilit\$.tw
17	Quality of life.tw
18	16 or 17
19	Case report.tw
20	(cas\$ AND series).tw
21	19 or 20
22	5 and 12 and 18 and 21
23	12 and 15 and 18