South Health and Policy. 2025; 4:409

doi: 10.56294/shp2025409

ORIGINAL



Inclusion of the variable "skin color" in the Complementary Statistical Information Health Subsystem of Cuba

Inclusión de la variable "color de la piel" en el Subsistema de Información Estadística Complementaria de Salud de Cuba

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Cite as: Cabal Armas AJ, Roche Madrigal M del C, Pérez Leyva ME, Araujo Inastrilla CR. Inclusion of the variable "skin color" in the Complementary Statistical Information Health Subsystem of Cuba. South Health and Policy. 2025; 4:409. https://doi.org/10.56294/shp2025409

Submitted: 23-08-2024 Revised: 05-02-2025 Accepted: 25-08-2025 Published: 26-08-2025

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ABSTRACT

Introduction: the inclusion of skin color as a sociodemographic variable in health information systems represents a challenge to strengthening health equity in Cuba. Despite having a universal and free healthcare system, the omission of this variable hinders analytical capabilities and the design of inclusive public policies. **Objective:** to characterize the status of the inclusion process of the "skin color" variable in Cuba's Complementary Statistical Information Health Subsystem in 2024.

Method: a cross-sectional descriptive study was conducted, combining document review, a focus group with specialists, and surveys of healthcare professionals. A total of 67 SIEC systems were analyzed, assessing primary and secondary records, the categories used, and staff perceptions regarding the inclusion of the variable.

Results: the variable is present in only 25 % of primary records and absent in all flow forms, preventing its consolidation at higher levels. A lack of standardization in the categories used was identified. Strategic systems were prioritized for initial inclusion, such as Classified patients in primary health care, Notifiable Diseases, and Outpatient Consultations.

Conclusions: the study characterized the status of the inclusion of the skin color variable in Cuba's SIEC health information systems in 2024, revealing limited and non-standardized integration. Effective incorporation requires a gradual and structured process that includes technical redesign, staff training, regulatory adjustments, and continuous monitoring.

Keywords: Skin Color; Information System; Complementary Statistical Information Subsystem; Health Statistics.

RESUMEN

Introducción: la inclusión del color de la piel como variable sociodemográfica en los sistemas de información sanitaria representa un desafío para el fortalecimiento de la equidad en salud en Cuba. A pesar de contar con un sistema universal y gratuito, la omisión de esta variable desfavorece la capacidad de análisis y el diseño de políticas públicas inclusivas.

Objetivo: caracterizar el estado del proceso de inclusión de la variable "color de la piel" en el Subsistema de Información Estadística Complementaria de salud de Cuba en 2023.

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Método: se realizó un estudio descriptivo transversal que combinó revisión documental, grupo focal con especialistas y encuestas a profesionales del sector salud. Se analizaron 67 sistemas del SIEC, evaluando registros primarios y secundarios, categorías utilizadas y percepción del personal sobre la inclusión de la variable.

Resultados: la variable está presente en solo el 25 % de los registros primarios y ausente en todos los formularios de flujo, lo que impide su consolidación a niveles superiores. Se identificó una falta de estandarización en las categorías empleadas. Se identificaron sistemas estratégicos prioritarios para iniciar la inclusión, como Dispensarizados, Enfermedades de Declaración Obligatoria y Consulta Externa.

Conclusiones: el estudio caracterizó el estado de la inclusión de la variable color de piel en los sistemas de información del SIEC de salud en Cuba en 2023, lo que reveló una integración limitada y no estandarizada de la variable. La incorporación efectiva de la variable requiere un proceso gradual y estructurado que incluya rediseño técnico, capacitación, ajustes normativos y monitoreo constante.

Palabras clave: Color de la Piel; Sistema de Información; Subsistema de Información Estadística Complementaria; Estadísticas de Salud.

INTRODUCTION

The skin, as the largest and most visible organ of the human body, performs essential functions of protection, thermal regulation, and perception of the environment. Skin color, a visible phenotypic characteristic, has traditionally been misinterpreted due to its erroneous association with the concept of race, a term that is debated and problematized in contemporary anthropology. This characteristic reflects a complex history of inequalities, discrimination, and social exclusion that has not yet been fully appreciated.⁽¹⁾

From a health equity perspective, considering skin color variability is essential to providing more inclusive and appropriate medical care to diverse patients. Recognizing phenotypic differences, which go beyond skin phototype, improves diagnosis, personalizes treatment, and promotes full respect for each person's uniqueness. Thus, understanding skin color becomes relevant not only in medicine, but also in art and science in general.⁽²⁾

The World Health Organization (WHO)⁽³⁾ recognizes that skin color can influence the prevalence of certain diseases, response to treatment, and the experience that patients have within healthcare systems. For this reason, the WHO promotes the inclusion of data disaggregated by skin color in health information systems, with the aim of improving equity and reducing inequalities in access to and quality of medical care. Examples from countries such as the United States, Brazil, the United Kingdom, South Africa, and Canada show the use of self-perception-based categories that also reflect phenotypic characteristics. These practices make it possible to analyze disparities and guide more inclusive public policies. (4,5,6,7)

In Cuba, the Government Information System integrates the systems that manage data necessary to meet state objectives at all social levels. The National Statistical System (SEN), led by the National Office of Statistics and Information (ONEI), and the Ministry of Public Health (MINSAP) through the Directorate of Medical Records and Health Statistics (DRMES), coordinate the collection and management of health information. Within this system, the Complementary Statistical Information Subsystem (SIEC) for health compiles statistics and analyses that respond to the information needs of state entities related to health. (8,9,10)

The SIEC disaggregates data using criteria such as age, sex, geographical location, type of disease, access to services, and other epidemiological indicators. However, the absence of skin color as a disaggregated variable and its inconsistent and uneven inclusion limit the ability to assess the impact of factors related to this characteristic on health indicators. This omission creates an information gap that hinders detailed analysis of inequalities and hinders the formulation of inclusive public policies. (8,9,10)

This situation represents a challenge, particularly when considering that Cuba has a universal and free health system, where equity should be a fundamental pillar. The lack of inclusion of skin color in statistical records restricts epidemiological accuracy, creates difficulties in the proper diagnosis of certain groups, and reduces the effectiveness of strategies designed to ensure equitable access to quality health care.

This creates a contradiction between the existence of a legal framework for public health at the international and national levels and the provisions against racism in the Cuban legal framework that emphasize the commitment to guarantee equitable and discrimination-free access to health. This means that, despite legislative recognition of the importance of identifying and addressing inequalities related to racial characteristics, the absence of systematic and accurate data on this variable prevents the detection and analysis of specific disparities based on skin color.

Based on periodic reviews of information requested by the WHO, much of which must be disaggregated by skin color, and the updating of the Cuban legal framework that seeks equity, equality, and the elimination of racism as of 2019 with the new Constitution of the Republic, alignment with the Sustainable Development

Goals, and national programs against racism and discrimination, it became necessary to implement a process to include the variable in the SIEC health system. This process has proven to be complex and comprehensive, posing a nationwide challenge for the effective inclusion of the variable in health statistics.

Therefore, the present study aims to characterize the status of the process of including the skin color variable in the SIEC health information systems in Cuba in 2023. The aim is to identify the existing limitations and potential for progress toward a data registry that integrates this dimension, thereby strengthening the quality of medical care, epidemiological management, and the promotion of public policies that respond to the diversity of the Cuban population in a fair and equitable manner.

METHOD

A descriptive cross-sectional study was conducted on the SIEC health system in 2023 in the province of Havana, commissioned by the MINSAP's Directorate of Medical Records and Health Statistics, due to the need to include the skin color variable in the health system's information systems.

The study universe consisted of the 67 information systems included in the health SIEC. No sampling was used. For each of these systems, the records, information flows, and the main actors involved in the information activity were analyzed.

At the beginning of the study, the main variable analyzed was the inclusion of the "skin color" variable. This was studied in the primary and secondary records of the 67 systems and measured in the categories "yes, includes" or "no, does not include."

Investigations into this variable were carried out through a documentary review of the primary and secondary records according to the measurement area to which the systems contribute, and the use of this variable (appendix 1):

- Medical care information systems.
- Hygiene, epidemiology, and microbiology information systems.
- · Teaching information systems.
- Collaboration information systems.
- Chart information systems.
- Economic information systems.

This review covered the 850 forms in the SIEC health system. This total includes:

- 260 forms declared as primary records for data collection in the methodological instructions for forms in series No. 241 (system flow forms).
 - 67 secondary records corresponding to the No. 241 series of forms.
- 523 forms that do not contribute data to the information flow of the systems but are used to support healthcare, hygiene, epidemiological, administrative, and teaching activities.

After analyzing inclusion through document review, techniques were used to collect qualitative information on the inclusion process. Unstructured interviews were conducted with public health and statistics specialists to understand the challenges and opportunities of integrating the variable into the primary records. This was done in a focus group format to gather opinions and build consensus on the modification process that should be carried out on the health SIEC. This initiative sought to identify the most relevant systems to begin the implementation process and determine priorities.

The session brought together public health system staff, national program managers, and statistical data and epidemiology management personnel. The process consisted of a collective evaluation of existing systems, applying criteria such as data accessibility, population impact, capacity to segment information, and technical feasibility of integration.

In addition, a closed-ended survey was conducted with a total of 89 doctors, nurses, healthcare professionals and technicians, managers, and health system officials involved in the recording, processing, and analysis of health data by skin color. After validation, the survey was administered electronically using a Google Forms questionnaire.

The data collected was analyzed using descriptive statistics, with absolute and relative frequencies (percentages). This allowed us to summarize and represent the distribution of the responses obtained in the survey administered to the participants. The results were organized into tables to facilitate interpretation and structured according to each question, highlighting the most significant proportions that reveal general trends within the surveyed group.

The study was conducted in accordance with the ethical principles of health research. The confidentiality of the information collected was guaranteed, and the identification of individuals or institutions in the records analyzed was avoided. The interviews and surveys were conducted with verbal informed consent, after explaining to each participant the purpose of the study and the intended use of the results. The anonymity of

the respondents was respected, and transparency was prioritized in the handling of sensitive data, especially those related to skin color. The research focused on improving the quality of records without generating discrimination or stigmatization, promoting equitable and respectful practices in health information systems.

RESULTS

Through a documentary review of the primary records of the 67 SIEC health systems in Cuba, it was found that the variable "skin color" is included in 66 records out of a total of 260 analyzed, for an inclusion rate of 25,0 %. Medical care information systems had the highest percentage of inclusion, at 31,0 % of the records that generate information entries into these systems. Secondly, an inclusion rate of 12,1 % was found in the primary records of the hygiene, epidemiology, and microbiology information systems. The variable is not included in any records of the teaching, collaboration, staff, and economic information systems (table 1).

Areas measured by the Statistical	Yes, included		Not in	Not included		Total	
Information System	No	%	No.	%*	No.	%	
Medical assistance	58	31	129	69	187	71,9	
Hygiene, epidemiology, and microbiology	7	12	5	87	58	22	
Teaching	0	0	3	100	3	1	
Collaboration	0	0	4	100	4	1	
Tables	0	0	3	100,0	3	1	
Economy	0	0	5	100	5	1	
Total	65	25	195	75	260	10	

During the review process, it was found that there are a total of 55 records that do include the variable "skin color." However, these forms are not used to enter information into the systems. They are forms that support clinical, epidemiological, teaching, and administrative activities. Even though they include the variable, they do not contribute data to the information processes and therefore do not represent effective inclusion of the variable in the systems.

One difficulty observed in these records is the lack of standardization of the variable corresponding to skin color. In some cases, the categories used were "white," "black," and "mulatto," in accordance with the scale officially recognized by the ONEI. However, in other records, the category "mulatto" was replaced by "mestizo," or a fourth category was added: "yellow."

A review was conducted of the secondary records of the information systems used to manage the flow of data from the reporting institutions of the health system to higher levels of subordination. During this analysis, it was verified that none of the flow forms of these systems include the variable "skin color" (table 2).

Areas measured by the Statistical	Included		Does no	Does not include		Total	
Information System	%	No	%	%	No.	%**	
Medical assistance	0	0	41	100	41	61,2	
Hygiene, epidemiology, and microbiology	0	0	13	10	13	19	
Teaching	0	0	3	100	3	4	
Collaboration	0	0	4	10	4	6	
Tables	0	0	1	100,0	1	1	
Economy	0	0	5	100	5	7	
Total	0	0	67	100	67	10	

Once the status of inclusion of the variable "skin color" in the SIEC health records was identified, the main stages to be followed in the inclusion process were outlined. This approach is shown schematically in figure 1.

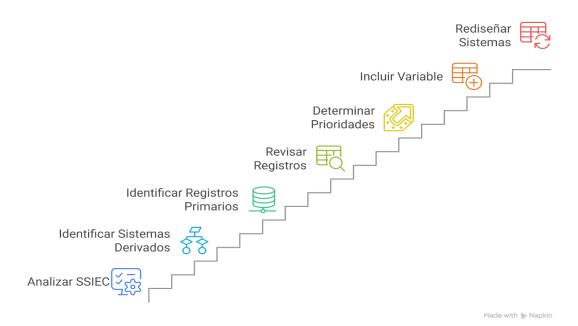


Figure 1. Steps for including the variable "skin color" in Cuba's Complementary Health Statistics Information Subsystem

After analyzing the criteria of the health system specialists consulted, the priority systems for initiating the inclusion process were established. The participants agreed to prioritize three key systems for the introduction of the variable:

- Statistical information system "Dispensarizados": due to its importance in the clinical follow-up of patients in primary care, it was considered strategic to use this system to capture disaggregated data by skin color. Its broad population coverage and constant updating of the demographic composition of the health area reinforce its usefulness, recognizing skin color as a relevant variable for epidemiological analysis and decision-making.
- Statistical information system "Notifiable Diseases (EDO)": its relevance in epidemiological surveillance processes was recognized, considering that the incorporation of the skin color variable would allow the identification of possible inequalities in the incidence of diseases. The disaggregation of data according to this variable would contribute to a more equitable and contextualized analysis of the epidemiological profile of the population.
- Statistical information system "Outpatient Consultations": its usefulness as a robust source for population analysis with a focus on equity was assessed, due to the high volume of records it handles. This system collects a wide range of data on consultations in various medical specialties, allowing for the capture of significant variations in access and care provided. Its scope and representativeness make it a strategic resource for disaggregating information according to sociodemographic variables, including skin color.

The selection of these systems will allow for gradual implementation, starting with those with the greatest technical feasibility and strategic relevance. The design of a pilot plan was proposed to adapt the flow forms and ensure that the variable is captured, aggregated, and used at higher levels of decision-making. The group also recommended accompanying implementation with awareness-raising and training processes for technical staff.

During the process of gradually modifying the systems, it was observed that intervention in the selected primary records not only has a direct impact on specific systems but also generates indirect changes in other systems. This is because multiple systems indiscriminately share the same primary records as a common source of information.

As shown in table 3, when the variable is incorporated into strategic primary records (such as 18-145-03 for Family Medicine Activities or 18-144-03 for Outpatient Consultations), up to 12 and 11 systems are modified simultaneously, respectively. This phenomenon demonstrates an interconnected structure between information systems, where primary records function as central nodes that articulate various data flows.

Table 3. Number of systems modified with the inclusion of the variable in primary records				
Primary records	Systems to which it contributes			
18-145-03 Family Medicine Activities	12			
18-144-03 Outpatient activities	11			
54-17-04 Surgical Report	11			
54-03-03 Admission summary and general information	8			
53-44-02 Hospital Movement	7			
18-38-03 Medical certificate of neonatal death	5			
18-39-03 Medical death certificate	5			
53-12-02 Register of patients treated	5			
54-50-03 Family health history	4			
66-15-02 Birth Registry	4			
18-198-02 Stomatology Activities	3			
53-40-03 Operations Register	3			
18-195-01 Household Income Register	3			
18-26-01 Daily Pathology Report	2			
34-25-01 Prenatal Genetic Risk Medical History	2			
50-18-01 Referral of the body to Forensic Medicine	2			
61-07-03 Registration of patients in Rehabilitation	2			
66-17-01 Birth registration	2			
76-10-01 Medical imaging technology service primary data record	2			
18-37-00 Medical certificate of fetal death	2			
66-18-01 Record of curettage	2			

The modification process requires an implementation plan, which was addressed by the focus group. This plan allows for an efficient and organized transition. This process yielded the following proposed actions:

Conceptual and dimensional definition

- The skin color variable is established with three clearly defined dimensions, supported by a standardized classification methodology: white, black, and mulatto (according to ONEI recommendations).
- Uniform criteria are defined for data collection, ensuring consistency and reliability in primary records.

Updating of primary records

- The data capture forms in the priority systems are modified: Dispensary, Notifiable Diseases, and Outpatient Care.
- Precise methodological instructions are incorporated to facilitate proper classification of the variable in the data entry process.

Adjustment to the information flow form

- The variable is integrated into all stages of the information flow: collection, transmission, and storage.
 - Staff responsible for data entry are trained to ensure efficient and consistent implementation.

Adaptation of processes and output tables

- Processing algorithms are updated to allow disaggregation by skin color.
- New output tables are generated to facilitate statistical analysis of this variable in institutional reports.

Design of indicators and evaluation mechanisms

- Indicators are developed to highlight potential health challenges based on skin color.
- Continuous evaluation strategies are implemented to monitor the impact of this inclusion on clinical and epidemiological decision-making.

Legal and regulatory support

- The current legal framework is reviewed and adjusted to formally endorse the incorporation of this variable into statistical systems.
- Compliance with regulations on personal data protection and the ethical use of information is ensured, in line with principles of equity and social justice.

Monitoring and methodological optimization

- A pilot period is defined to evaluate the quality, consistency, and usefulness of the data collected.
- Based on preliminary results, methodological adjustments are introduced to strengthen the reliability of processes and results.

Furthermore, the survey of 89 professionals involved in data management and care in the health system identified key perceptions regarding the recording of skin color as a sociodemographic variable. Sixty-one point eight percent (34) of respondents had previously recorded information on patients' skin color, indicating that this practice exists but is not standardized, while 38,2 % (55) had no such experience.

This group shared their thoughts on future procedures for processing skin color information. A high percentage (77,5 %) believe that this variable should be mandatory in medical records, revealing a high awareness of its potential usefulness. This consensus supports the design of regulatory strategies to institutionalize its inclusion (table 4).

Seventy-eight point seven percent believe that the recording should be done through professional observation, in contrast to 21,3 % who suggest that it should be self-reported. Although 43,8 % consider it necessary to inform and obtain consent for the recording of patients' skin color, 31,5 % still do not consider it relevant and 24,7 % have doubts. These findings reveal the need to train staff on the ethics of informed consent and transparency in the use of sensitive data. Seventy-seven percent believe that the variable is relevant for studying health inequalities, which reinforces its inclusion as a tool for social diagnosis and health planning (table 4).

Table 4. Perceptions of health system professionals on the inclusion of skin color in information systems						
Question	Answer	No	% (N=89)			
Do you think this information	No	20	22			
should be mandatory in medical records?	Yes	69	77,5			
What criteria should be used to record the patient's skin	Statement by the person	19	2			
color?	Observation by the recorder	7	78,7			
Do you consider it necessary	No	2	31,5			
to inform the patient about the purpose of recording	Yes	39	43,8			
skin color and obtain their consent?	Maybe	22	24,7			
Do you think this information	No	12	1			
would help in analyzing health inequalities?	Yes	63	70,8			
	Maybe	14	15,7			

An important aspect was determining who was responsible for recording the data in the information systems. The majority (85,4%) stated that healthcare professionals (doctors, nurses, technicians) should be responsible for recording the data, suggesting that this should be integrated into everyday clinical practice rather than delegated to administrative staff (figure 2).

Seventy-seven percent of respondents say they have not participated in workshops or courses on the importance of recording skin color. This result does not necessarily reflect a consolidated gap, but rather an ongoing training process. Twenty-nine point two percent of staff have received training, as specific actions have already been initiated to strengthen this component. These data suggest the need to continue expanding and consolidating training programs for all staff involved, prioritizing both technical and ethical aspects, with the aim of ensuring the progressive, contextualized, and respectful implementation of this practice.

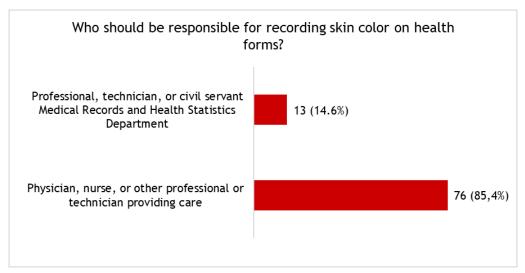


Figure 2. Perception of responsibility for recording skin color in the SIEC health information systems in Cuba (N=89)

DISCUSSION

Skin color in Cuba is a characteristic that marks significant differences in the health conditions of the population. Although its dimension is partly biological, it has acquired a strong social component due to the profound disarticulations that historically affected non-white groups during the national formation process. In the study by Albizu-Campos Espiñeira et al.⁽¹¹⁾ conducted in 2016, skin color emerges as a axis of inequality that impacts various spheres (access to health, education, employment, and housing). The inherited asymmetries, resulting from the fact that Black and mixed-race people started from structurally disadvantaged positions, still have a social impact that requires approaches to different social problems from the perspective of skin color.

This study also notes that in Cuba, these approaches are less systematic and generally based on poorly refined indicators. Within this national context, skin color is one of the least studied variables, among other reasons due to the absence of this data in continuous data collection models. Although this variable was already present in the Medical Death Certificate (CMD), it was not until 2003 that analyses began to be carried out to investigate the differences in mortality observed in the Cuban population by skin color. (11)

Although the Medical Death Certificate includes this variable, as Albizu-Campos Espiñeira et al. (11) point out, the analysis of data related to this characteristic is insufficient in mortality information systems, as well as in others, since it was found that there are no information flows that include the variable.

The article by Zabala⁽¹²⁾ highlights a central problem: the lack of integration of skin color in official studies and records, especially in the field of health. Based on the systematization carried out, several key points are identified that can serve as a basis for a critical discussion on the inclusion of this variable in health records. Higher rates of infant mortality and mortality from various causes are observed among the non-white population, as well as greater exposure to risk behaviors such as alcohol and tobacco use.

According to this publication, the exclusion of skin color as a variable in multiple official sources of the health system represents a significant obstacle to clinical and epidemiological analysis with a focus on equity. In some cases, this omission is due to a fear of reinforcing prejudices or creating distinctions that could be interpreted as racist; however, this decision contributes to making structural inequalities that affect specific population groups invisible. Even when this information is collected, restricted access to statistics hinders the development of rigorous research and the formulation of public policies aimed at reducing health gaps. The absence of data disaggregated by skin color perpetuates analytical gaps that prevent the effective addressing of the social determinants associated with these inequalities. (12)

As the results show, although certain primary records do collect information broken down by skin color categories, this information is not consolidated or transmitted to higher authorities. Its use in decision-making processes is therefore limited.

Skin color has been identified as a key factor in shaping social inequalities, creating situations of vulnerability among different population groups. This reality becomes even more complex when this variable interacts with other conditions that have historically given rise to discrimination, such as age, disability, socioeconomic status, gender, or territory. (13) This intersection of factors has contributed to the health system omitting the skin color variable from many of its main sources of information. In an attempt to avoid discriminatory practices, this data has been excluded, which in turn has led to analytical gaps. Implicitly, this omission generates significant biases in clinical and epidemiological studies, making it difficult to rigorously address health problems related

to racial inequalities.

Given the low level of inclusion of this variable in the systems analyzed, it is essential to plan concrete actions to ensure its effective incorporation. Following a review to identify existing records and their current status, a set of measures aimed at implementing this process is proposed.

Given the large number of systems that require modification, it is necessary to establish prioritization criteria to rank the order of intervention. Once this hierarchy has been defined, the inclusion of the variable within the structure of each system should begin.

The first component where this variable should be incorporated is the primary records, which constitute the system's information inputs. However, this step alone is not sufficient, as the integration of the variable involves a comprehensive redesign of the structure. Such a transformation encompasses aspects such as objectives, regulatory documents, definitions, records, procedures, and indicators.

As the structure is adjusted, the system processes must also be modified to allow for the collection of information based on skin color. The results will also be influenced, as the system outputs will have to consolidate or disaggregate the data based on this variable, depending on the analytical needs.

Added to this is the methodological complexity inherent in the process of collecting this information, which often introduces biases derived from the subjectivity of the person performing the classification. (11) Therefore, it was essential to define, in the process of modifying the SIEC, which actor in the health system would assume responsibility for recording, under what criteria, and using what scale (white, black, and mulatto). This poses an ethical and methodological dilemma that needs to be reviewed in light of good practices and respect for the patient's perceived identity.

The use of different scales has been a challenge in standardizing criteria for measuring the variable. In the studies consulted, Díaz-Bernal⁽¹⁾ and Albizu-Campos Espiñeira et al.⁽¹¹⁾ use the classification "white" and "non-white"; the ONEI⁽¹⁴⁾ in its summary of the 2012 population and housing census, uses the classification "white," "black," and "mulatto."

These elements allow us to recognize that the evaluation of health information systems is a key step in identifying gaps and information needs. This process must consider the capacity of current systems to capture relevant sociodemographic data, such as skin color, educational level, and socioeconomic conditions, which directly influence the social determinants of health. It also involves reviewing the technical structure, data collection protocols, interoperability between platforms, and staff training. Only through rigorous and ethical diagnosis can strategies be designed to strengthen the production of useful, relevant, and transformative information for more inclusive public policies.^(15,16)

Changes should be gradual, according to the priorities of the health system. Hence the selection of priority systems for modification: Dispensaries, Outpatient Care, and Notifiable Diseases.

It is clear that continuous improvement of the procedures of the aforementioned statistical information systems is crucial to ensuring quality healthcare. The data collected and processed not only enable informed decision-making, but also enhance the effectiveness and efficiency of the services provided. Likewise, the development of specific manuals and guidelines for the management of these systems is an essential step toward standardizing processes and optimizing results in the process of including the variable. (17,18) All of these issues require training for all personnel involved in the information management process to ensure the proper adoption of changes in information systems.

Official statistical systems play a fundamental role in strengthening modern democracies, noting that the legitimacy and usefulness of public data are built through transparency, methodological reliability, and dialogue between social actors. Without disaggregated and reliable information, it is not possible to diagnose or correct structural inequalities. In addition, they should promote the regulatory and technological modernization of statistical systems, emphasizing the need for ethical management of new sources. This perspective makes statistical information systems not only a technical tool, but also a vehicle for equity and citizen participation. (19)

Therefore, the inclusion of this variable in these registers not only optimizes the process of disaggregation by skin color in directly linked systems, but also extends its scope across the board, facilitating population analysis with a broader focus on equity. This multiplier effect reinforces the need to prioritize the modification of primary registers with greater systemic taxation, maximizing the impact of the inclusion strategy.

This process is urgently needed to advance toward equitable, evidence-based care. The lack of this variable in records prevents the identification of differentiated patterns and limits the design of public policies that are sensitive to inequalities. Modifying current systems involves not only technically incorporating this category, but doing so in a coherent manner: with standardized criteria, trained personnel, and an ethical vision that recognizes the value of making inequalities visible without reinforcing stigmas. Only then will it be possible to generate useful knowledge that contributes to closing historical gaps in health and well-being.

CONCLUSIONS

The study characterized the status of the inclusion of skin color as a variable in the SIEC health information

systems in Cuba in 2023, revealing limited and non-standardized integration of the variable. Despite the willingness of the health system to record this variable, a gradual intervention is required that includes technical redesign, training, regulatory adjustments, and continuous evaluation, prioritizing strategic systems to ensure the effective, ethical, and transformative incorporation of this sociodemographic dimension.

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CONFLICT OF INTEREST

No conflicts of interest are declared.

FINANCING

No funding was received.

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ANNEXES

Information systems of the Complementary Health Statistics Information Subsystem of Cuba in 2023.

Medical Assistance Information Systems

Name of system	Primary records	Flow form	Skin color
Activities related to the	18-144-03 Outpatient consultation activities	241-422-10	No
women's health program	18-145-03 Family medicine activities		Yes
	53-12-02 Record of patients seen		No
	66-18-01 Record of curettage		No
	68-01-01 Cytological test records		No
	53-67-03 Health action planning		No
	54-17-04 Surgical report		No
Surgery and Anesthesia	18-38-03 Medical certificate of neonatal death	241-487-09	Yes
Activity	18-39-03 Medical certificate of death		Yes
	18-144-03 Outpatient consultation activities		No
	18-208-01 Register of pending patients		No
	53-12-02 Register of patients seen		No
	54-17-04 Operating report		No
	53-40-03 Operations logbook		No
	53-44-02 Hospital Movement		No
	54-16-03 Surgical Announcement		Yes
Cauterization and Plastic	18-144-03 Outpatient consultation activities	241-427-04	No
Surgery Activity	54-17-04 Surgical Report		No
	71-07-02 Caumatology record		No
Dental activities	18-198-02 Stomatology activities	241-406-12	No
	47-22-04 Referral of PDCB patients		Yes
	47-23-01 Daily Stomatology X-ray Report		No
	47-24-02 Daily record of activities carried out in the prosthetics and orthodontics laboratory		No
	47-31 Record of preventive stomatological activities in children's institutions and schools		No
	54-17-04 Surgical report		No
	53-40-03 Operations logbook		No
Activities of optical shops and	30-31-01 Order Register	241-443-05	No
engraving workshops	30-33-01 Activity report (optician)		No
ithotripsy activities (surgery	54-17-04 Surgical report	241-487-09	No
and anesthesia activities)	53-40-03 Operation Log Book		No
	53-44-02 Hospital Movement		No
	54-16-01 Surgical Announcement		Yes
Forensic medicine activities	50-08-01 Registration of admission to the forensic clinic	241-429-04	No
	50-09-01 Record of entry of corpses		No
	50-10-02 Activities carried out at the forensic clinic		No
	50-19-01 Forensic activities outside the center		No
	50-16-01 Examination for sexual offenses		No
	50-18-01 Transfer of the body to the Forensic Medicine Department		No
Facial rehabilitation and maxillofacial prosthetics	47-20-01 Registration of patients seen in the Oral and Maxillofacial Prosthetics Clinic	241-470-04	No

Name of system	Primary records	Flow form	Skin color
	47-27-01 Oral and maxillofacial prosthesis laboratory activities		No
Genetics program activities	34-45-01 34-45-01 Linear registration. Prenatal studies and pregnancy outcomes and evaluation of the product	241-500-04	No
	18-145-03 Family Medicine Activities		Yes
	34-11-01 Indication for cytogenetic study		Yes
	34-13-01 Cytogenetic study results		Yes
	34-25-01 Prenatal genetic risk medical history		Yes
	34-01-01 Indication for hemoglobin electrophoresis		Yes
	34-25-01 Medical history of prenatal genetic risk		Yes
	34-26-01 Indication of Alpha-fetoprotein		Yes
Activities in transfusion	44-05-02 Donor registry (blood and apheresis)	241-160-13	No
services, blood banks, and collection centers	44-24-02 Transfusion registry		No
collection centers	44-30-02 Register of withdrawals from blood banks and collection services		No
	44-31-02 Record of blood withdrawals from transfusion services		No
Activities in municipal benign cervical pathology	18-213-01 Registration of patients in municipal benign cervical pathology consultations	241-517-02	No
consultation	18-144-03 Outpatient consultation activities		No
Activities in diagnostic and	18-23-02 Daily imaging report	241-475-08	No
reatment departments	54-17-04 Surgical Report		No
	54-27-01 Respiratory Function Testing Department Worksheet		No
	64-26-01 Daily research intake control	241-509-05	No
	76-08-01 Ultrasonography worksheet		No
	76-10-01 Medical imaging technology service primary data record		No
Activities of the Turquino Plan	18-38-03 Medical certificate of neonatal death	241-446-08	Yes
	18-39-03 Medical death certificate		Yes
	18-144-03 Outpatient consultation activities		No
	18-145-03 Family medicine activities		Yes
	18-195-01 Home Income Record		No
	18-196-01 Activity Sheet Emergency Subsystem in PHC		No
	18-198-02 Stomatology activities		No
	29-03-01 Monthly production plan (draft)		No
	53-12-02 Record of patients treated		No
	54-03-03 Summary of admission and general data		Yes
	54-17-04 Surgical report		No
	54-50-03 Family Health History		No
	61-06-01 Record of patients treated in comprehensive rehabilitation service		No
	61-07-03 Registration of patients in rehabilitation		No
	66-17-01 Birth registration		No
Activities in units with	18-37-00 Medical certificate of fetal death	241-404-09	Yes
obstetric services	18-145-03 Family medicine activities		Yes
	54-03-03 Admission summary and general information		Yes
	66-15-02 Birth Record		Yes
	66-18-01 Dilation and curettage record		No

Name of system	Primary records	Flow form	Skin color
Pathological anatomy	18- 26-01 Daily Pathological Anatomy Report	241-414-08	No
(Hospital care and services)	To 20 01 2 and 1 among to at 1 marching mapone		
Municipal Intensive Care Unit	18-214-01 Record of cases seen and admitted to Municipal Intensive Care Units	241-502-04	No
Balance sheet with consumption and existence of controlled substances	32-31-01 Official book for the control of narcotics, psychotropic substances, and substances with similar effects	241-697-04	No
Causes of hospital discharges	54-03-03 Summary of admission and general data	241-451-04	Yes
	18-44-02 Coding (Diagnosis)		No
	18-197-02 Monthly daily record of: discharge morbidity		No
Medical certificates for	18-188-02 Record of medical certificates	241-413-08	No
temporary disability for workers and those injured in	18-145-03 Family medicine activities		Yes
road accidents	53-79-01 First aid certificate for an injured person		Yes
Outpatient consultation	18-144-03 Outpatient consultation activities	241-416-13	No
	18-145-03 Family medicine activities		Yes
Emergency and urgent care	18-38-03 Medical certificate of neonatal death	241-450-07	Yes
consultations	18-39-03 Medical certificate of death		Yes
	18-145-03 Family Medicine Activities		Yes
	18-195-01 Household income register		No
	18-196-01 APS Emergency Subsystem Activity Sheet		No
	53-12-02 Record of patients treated in the emergency room		No
	94-02-01 Record of Care Provided to Serious Patients		No
Deaths (Mortality)	18-38-03 Medical certificate of neonatal death	241-024-06	Yes
	18-39-03 Medical death certificate		Yes
	18-37-00 Medical certificate of fetal death		Yes
	18-39-03 Death registration		Yes
	50-12-01 Reception and delivery of corpses		Yes
	50-18-01 Transfer of the body to the Forensic Medical Service		Yes
	53-60-02 Deceased (death registration)		Yes
Early detection of cervical	18-26-01 Daily Pathology Report	241-461-04	No
cancer	18-144-03 Outpatient consultation activities		No
	68-04-01 Cytodiagnosis request		No
	68-06-01 Registration of samples with initial results not useful		No
	68-07-01 (68-09-02) Neck pathology		No
Dispensed	54-50-03 Family Health History	241-476-07	No
Natural and Traditional	18-144-03 Outpatient consultation activities	241-458-08	No
Medicine Indicators	18-145-03 Family medicine activities		Yes
	18-196-01 Activity Sheet. Emergency subsystem in PHC		No
	18-198-02 Stomatology Activities		No
	29-03-01 Monthly production plan (draft)		No
	53-12-02 Record of patients treated in the emergency room		No
	54-03-03 Summary of admissions and general data		Yes
	54-17-04 Surgical report		No
Mortality and autopsy indicators	18-38-03 Medical certificate of neonatal death	241-418-06	Yes
	18-39-03 Medical death certificate		Yes

Name of system	Primary records	Flow form	Skin color
	53-44-02 Hospital Transfer		Yes
	54-03-03 Summary of admission and general information		Yes
	57-08-02 Autopsy report		Yes
Selected indicators for maternity homes	66-28-04 Maternal Home Registry Book	241-495-05	No
Selected indicators of nursing	18-144-03 Outpatient consultation activities	241-504-04	No
activity	18-145-03 Family medicine activities		Yes
	46-18-02 Treatment and healing services (except family medicine)		No
Selected indicators of care for	18-144-03 Outpatient consultation activities	241-514-02	No
older adults	18-145-03 Family medicine activities		Yes
	53-44-02 Hospital movement		Yes
	54-50-03 Family Health History		No
Admission to the home	18-195-01 Home admission record	241-450-07	No
Obstetric activities and	18-37 -00 Medical certificate of fetal death	241-404-09	Yes
exclusive breastfeeding	18-145-03 Family medicine activities		Yes
	54-03-03 Admission summary and general information		Yes
	66-15-02 Birth Record		Yes
	66-18-01 Record of curettage		No
Morbidity and mortality in	54-03-03 Summary of admission and general data	241-445-08	Yes
neonatal services in hospitals with obstetric services	66-15-02 Birth registry		Yes
	66-17-01 Birth record		No
	18-225-01 Registry of patients admitted to neonatal wards in hospitals with obstetric services obstetric services		No
Morbidity and mortality in	54-03-03 Summary of admission and general data	241-523-02	Yes
neonatal services in pediatric	69-27-02 Admission summary	241-323-02	No
and general hospitals	69-33 Newborn ID card		No
	18-228 Registry of patients admitted to open neonatal services in pediatric and general hospitals		No
Movement of persons housed in social welfare institutions (nursing homes and psychopedagogical medical centers)		241-417-05	Yes
Hospital movement	53-44-02 Hospital movement	241-417-05	Yes
	46-07-01 Daily ward movement report		No
	18-09-03 Record of patients by ward		No
	18-10-01 Record of stay by discharge		No
	18-11-02 Daily patient census record		No
	18-186-02 Daily summary of ward movements		No
Births	66-15-02 Birth record	241-024-06	Yes
	66-17-01 Birth Registration		No
Nephrology	18-215 Registry of patients in hemodialysis or peritoneal dialysis services	241-506-05	No
	18-217-01 Follow-up registry for patients with kidney transplants		No
	89-06-01 Weekly laboratory report		No
Specialized procedures	18-144-03 Outpatient consultation activities	241-482-09	No
•	54-17-04 Surgical report		No
	68-72-01 Registration of patients receiving chemotherapy		No

Name of system	Primary records	Flow form	Skin color
Breast Cancer Program	18-145-03 Family Medicine Activities	241-434-04	Yes
	54-50-03 Family Health History		No
	68-67-03 Case registration. Diagnostic and treatment referral center. National Breast Cancer Program		No
	76-10-01 Primary data record of the medical imaging technology service		No
	18-26-01 Daily Pathology Report		No
Resources and other indicators	Professional registry	241-433-08	No
of the family doctor and nurse	P-4 Staffing		No
subsystem	FT25 Vacancy information		No
	Administrative registry of health units		No
Ambulance services	94-03-01 Register of Transferred Patients. Emergency	241-411-05	No
	Route sheet		-
	Demand record		-
Integrated disability and rehabilitation system	18-31-01 Amputation report	241-454-05	No
	18-32-02 Registry of persons with intellectual disabilities		No
	18-33-01 Registry of children born at risk		No
	18-144-03 Outpatient consultation activities		No
	53-44-02 Hospital movement		Yes
	54-17-04 Surgical report		No
	18-204-01 Record of patients admitted to the Pediatric Intensive Care Unit		No
	61-06-01 Register of patients treated in the comprehensive rehabilitation service.	241-469-12	No
	61-07-03 Register of patients in Rehabilitation		No
	61-10-01 Register of patients undergoing smoking cessation treatment		No
Toxicology	49-08-01 Record of samples received	241-512-03	No
	49-09-01 Record of tests. Toxicological analysis laboratories		No
Transplantology	18- 26-01 Daily Pathological Anatomy Report	241-414-08	No
	45-01-01 Donor control		No
	54-17-04 Surgical report		No
	67-32-00 Eye Bank Cornea/Sclera Donor-Recipient Form		Yes
Cases treated for selected noncommunicable diseases (system incorporated in 2025)	18-145-03 Family Medicine Activities	241-527-00	Yes

Hygiene, Epidemiology, and Microbiology Information Systems

System name	Primary records	Flow form	Skin color
Zoonosis activity	18-30-02 Vaccination report	241-428-09	No
	18-145-03 Family medicine activities		Yes
	53-12-02 Record of patients seen in the emergency room		No
	84-01-03 Notifiable Diseases. Case Notification		No
	92-07-01 Record of admissions and diagnosis of rabies		No
	92-27-01 Control of anti-rabies treatment		No
	92-32-01 Report on sanitation posts		No
	92-33-01 Report on animals slaughtered or poisoned		No
	92-34-02 Dog census and registration		No

System name	Primary records	Flow form	Skin color
Contaminants in food	89 -16-01 Record of entry, results, and exit of samples	241-425-08	No
Tuberculosis control	EDO-TB/241-462	EDO-TB/241-462	No
	18-144-03 Outpatient consultation activities	241-490-07	No
	18-145-03 Family medicine activities		Yes
	46-26-01 Control of tuberculin tests performed		No
	53-12-02 Record of cases attended in the emergency room		No
	64-30-01 Laboratory record for smear testing and Xpert MTB/RIF		No
	64-31-04 Request for TB analysis of biological samples		No
	81-50-02 Control of treatment of patients and contacts		No
	81-52-01 Chemoprophylaxis card		No
	81-53-01 Case registration		No
	84-01-02 84-01-02 Notifiable diseases. Case notification		No
	54-50-03 Family Health History		No
Vector surveillance and	91-06-02 Daily Vector Control Work Report.	241-519-02	No
control	91-12-02 Daily Sample Record		No
	91-06-02 Daily Vector Control Work Report.	241-521-03	No
	91-12-02 Daily Sample Record.		No
	91-16-01 Control of Decree Law.		No
	91-17-01 Register of Closed Premises.		No
	18-115-02 Monthly Daily Summary		No
	Work Organization Book. Comprehensive Family Brigade	241-518-02	No
	Sketch of blocks and premises		No
	Internal regulations of the polyclinic		No
Malaria control (slides examined)	64-26-01 Daily control of incoming research	241-475-08	No
Notifiable Diseases	18-26-01 Daily Pathology Report	241-403-06	No
	18-37-00 Medical certificate of fetal death		Yes
	18-38-03 Medical certificate of neonatal death		Yes
	18-39-03 Medical certificate of death	-	Yes
	18-144-03 Outpatient consultation activities		No
	18-145-03 Family medicine activities		Yes
	18-196-01 Activity sheet for the emergency subsystem in PHC		No
	53-12-02 Record of patients treated in the emergency room		No
	54-03-03 Admission summary and general information		Yes
	84-01-04 Notifiable Diseases. Case Notification.		No
	89-06-01 Weekly laboratory report		No
Healthcare-associated	18-182-01 Record of infected cases	241-424-11	No
nfection (Hospital nfection)	54-17-04 Surgical report		No
Screening for HIV, AIDS, and hepatitis B and C	84-10-02 Daily record of VDRL/RPR serology and urethral, endocervical, and vaginal exudates performed.	241-410-12	No
	84-40-02 Daily record of HIV serology tests/samples analyzed.		No
	64-26-01 Daily control of incoming research		No
Prevalence of leprosy	18-129-02 Epidemiological survey of leprosy patients	241-526-00	No
	18-191-04 Leprosy prevalence update register		No
	84-01-04 Notifiable Diseases. Case Notification		No

System name	Primary records	Flow form	Skin color
	84-39-01 Control of treatment of leprosy patients and contacts (card)		No
Systemic inflammatory response syndrome	18-204-01 Register of patients admitted to the pediatric intensive care unit 18-204-01 Registry of patients admitted to the pediatric intensive care unit	241-485-04	No
Vaccination	18-30-02 Vaccination report	241-415-08	No
	84-19-02 School vaccination record		No
	84-20-02 Vaccination card 18-30-02 Vaccination report 18-30-02 Vaccination report 18-30-02 Vaccination report 18-30-02 Vaccination report		No
Adverse reaction surveillance	84-30-03 Epidemiological survey of adverse events following vaccination	SCFv	No
Differentiated services for key populations	18-229-01 Primary registry of key populations reached with HIV/syphilis/hepatitis B/hepatitis C prevention or testing package	Datasoft (Automated system)	No
State health inspection	87-24-00 Inspection report for state workplaces	Andariego-Higia	-

Other information systems

System category	System name	Primary records	Flow form	Skin color
Teaching	Average medical teaching activities		221-501-02	No
	Higher medical teaching activities		223-1162-05	No
			223-1167-02	No
Collaboration	Cuban medical collaboration abroad	Those established in each country	241-459-07	No
			241-477-0	No
			241-484-03	No
			241-492-02	No
Paintings	Share status	25-23-02 Record of movement of shares (TC-06)	241-513-03	No
		25-25-02 Record of reserve frames (TC-08)		No
		25-26-02 Chart of accounts template (TC-09)		No
Economy	Disciplinary measures by cause and complaints	Forms established by Resolution No. 29 of June 16, 2014, of the MTSS, complementary to the Labor Code: Annex No. 14 B "On the job description template and the worker registry," Subsection a) Registration of main data and Subsection b) Registration of hires and terminations. Record of disciplinary measures, as established in Article 166 of Decree No. 326 of June 12, 2014, "Regulations of the Labor Code." Forms for Labor Justice Bodies Annex No. 17 of Resolution No. 29, dated June 16, 2014, of the MTSS, complementary to the Labor Code.	241-516-02	No
	Claims before labor justice bodies	Administrative records created for this purpose in the Human Capital departments.	241-515-02	No
	Non-commercial services	Aggregate information forms from which data is collected	241-483-06	No

Workers in the national health system	Form established by Resolution No. 29 of June 16, 2014, of the MTSS, supplementing the Labor Code: Annex No. 14 B "On the staffing table and the register of workers," Section a) Registration of main data and Section b) Registration of new hires and terminations. Register of Health Professionals and Technicians. RTS System. Registration of workers on fixed-term contracts	241-995-06	No
Use of the time fund	SC-4-03 Attendance control SC-4-04 Notification of Vacations, Deductions, Leave, and Subsidies SC-4-05 Pre-name Record of Medical Certificates Received	241-488-04	No