
Methods. A non-systematic review was carried out of the recent literature focused on the analysis of integration and sustainability.

Results. The main result extracted from the literature review is the need to address sustainability in a way that goes beyond the limits of any analysis confined to financial sustainability. Although integration and sustainability are not interpreted uniformly, an approach that includes integration as a facilitating factor of the EPI sustainability process does stand out.

Conclusions. The effectiveness of EPI integration strategies depends to a large extent on considering the presence, strengthening, and transformation of organizational and institutional structures that facilitate the participation of actors with the technical and political ability to ensure their implementation processes. Thus, political processes can be weighed that legitimize an agenda to include EPI in the Universal Health strategy and, accordingly, as an integral part of health systems strengthening.

Keywords. Systems integration; universal access to health care services; health systems.

The creation of the Expanded Program on Immunization (EPI) of the Americas in 1977 marked the beginning of one of the most successful priority public health interventions in the Region (1). The greatest successes attributable to the EPI include the certification of polio eradication in the Region in 1994 (2); the elimination of rubella, congenital rubella syndrome, and measles in 2015 and 2016, respectively; and the reduction of infant mortality from vaccine-preventable diseases in the majority of the countries (3).

Different modalities have been used in EPI development and implementation. In some countries, they have been linked early on with the development of the first level of care and health systems strengthening, while in others, the EPI is a totally vertical program whose sustainability is in question, because it has not been part of the transformation and sustainability process of the health system as a whole (4, 5).

Some of the EPI’s characteristics put it in an advantageous position for sustainability in comparison with other priority programs: vaccination as a public good is a health activity that enjoys great social acceptance, and its strong, evidence-based technical support gives it considerable momentum and legitimacy in the countries. Nonetheless, the EPI’s sustainability requires sufficient, stable, and sustainable financial
resources that are often shared by other priority programs.

The epidemiological and sociodemographic context in which health programs operate affects their sustainability and differs from country to country and region to region. The Region of the Americas is characterized by a state of advanced demographic transition, with an average life expectancy of 77 years and a total fertility rate (2.0 children per woman) very close to the replacement threshold (6). Population aging and a higher prevalence of non-communicable diseases are putting growing financial pressure on health systems and heightening concerns about the sustainability of programs, especially in low-income countries with higher fertility rates (7).

In this regard, dependence on external assistance and the cooperation of agencies that are seen very widely in the Region. In some countries, the involvement of such actors as GAVI (Global Alliance for Vaccines and Immunization) has been and continues to be the key, although its progressive decline in countries with a strong presence of international cooperation is expected in the coming years. Countries that are “graduating” out of this cooperation are entering a transitional phase in the financing of their priority programs that requires an increased commitment of local resources. This programmed withdrawal of international assistance has aroused concern about the sustainability of immunization and other international priority programs, giving this issue a prominent place in the agenda (3). This interest in the sustainability of health programs, however, is not rooted in the decline in international assistance. This discussion dates back to the 1980s and the concern that certain interventions might not last long (8, 9). Furthermore, since the 1990s, the analysis of sustainability has gone beyond the financial dimension to include other organizational, institutional, and political factors (9, 10).

Understanding that the challenges of sustainability go beyond the need to replace external sources of financing with local sources (3, 11), a broader multidimensional approach has been adopted (12-14) that includes an analysis of the benefits of integrating priority programs into health systems through a “horizontal” design that improves on the traditional structures of “vertical” designs (14-16).

The sustainability of these programs in the Region must be addressed in a manner that can result in an integrated approach to the problems it poses in the framework of the countries’ institutional characteristics and health system transformation policies.

The PAHO Strategy for Universal Access to Health and Universal Health Coverage (Universal Health) of 2014 is an essential reference for considering the most important challenges to the health systems. This Strategy identifies health program segmentation and fragmentation as two key challenges that “are perpetuated by a lack of regulatory capacity within health systems and by the vertical nature of some public health programs and their lack of integration at the service delivery level.” (17) In this context, the sustainability and integration of priority programs, and the EPI in particular, are especially important.

The objective of this article is to analyze the sustainability and integration of priority programs in the framework of this Strategy.

MATERIALS AND METHODS

With this objective in mind, a non-systematic review was conducted of the literature in which the dimensions of integration and sustainability have recently been analyzed. The literature search was conducted in Google Scholar and PubMed, using the following selection criteria: a) articles published since 2000, a period in which innovative theoretical output based on neo-institutional theory, used in the selected articles, is combined with a general discussion among international agencies on the challenges to the sustainability of priority programs (11, 18); b) articles in which sustainability or integration are the main themes; c) articles that include a robust literature review, either theoretical or in application to case studies; and d) articles that contain an analytical framework as an explicit product. The selected articles are presented in this study considering their objectives, methodological approach, and the dimensions studied. This is complemented with three lines of content analysis: 1) the extent to which the articles address sustainability or integration as part of the object of analysis, and how they do so; 2) the way in which they consider political and institutional factors as facilitators of sustainability; and 3) how they characterize the processes of change. Finally, these lines of analysis were used to interpret the sustainability and integration of the EPI into the framework of the Strategy for Universal Access to Health and Universal Health Coverage.

RESULTS

Table 1 presents the selected articles and describes their objectives, methodological approach, and the dimensions analyzed. The objectives coincide in the need for an analytical framework that goes beyond an analysis limited to financial sustainability. Regarding methods, only two of the studies included in this review base their output on systematic literature reviews (14, 15). As for the dimensions of the analyses, a common feature is their association with two types of visions: one related more to the functions of a health system (12, 14, 15) and the other, more to processes (such as adoption, dissemination, and assimilation) (13, 19). Finally, the relationship between sustainability and integration is present in all the articles and clearly emerges in those that explicitly include it in the analysis of health system programs and characteristics (12, 15). The way in which the three lines of analysis have been addressed in the studies included in this review is described below.

Sustainability and integration as the object of analysis

Oberth and Whiteside (12) and Pluye et al. (13) consider sustainability a desirable outcome, understanding it as the main dimension, and integration either as a prerequisite or as potentially synonymous with sustainability. The two studies differ in both their propositions and the approach used in the analysis of the relationship between integration and sustainability. The first article posits different dimensions of sustainability in order to recognize different aspects that should be taken into account when attempting to guarantee the sustainability of HIV programs, and the second constructs an analytical framework summarizing the published literature on this subject and proposes gradual phases of sustainability.

Gruen et al. (14) and Shigayeva and Coker (15) also regard sustainability as a main concern but more clearly perceive
TABLE 1. Selected frameworks of analyses

<table>
<thead>
<tr>
<th>Authors, year (reference)</th>
<th>Main objective</th>
<th>Methodological approach</th>
<th>Dimensions of the analysis</th>
<th>Sustainability-integration relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oberth, Whiteside, 2016 (11)</td>
<td>Conceptualize the dimensions of sustainability in the context of a decline in international assistance, with a focus on cases of financial transition in HIV/AIDS programs</td>
<td>Based on a discussion in the literature that combines theoretical literature with national and donor experiences</td>
<td>Authors posit six dimensions of sustainability: 1. Financial 2. Epidemiological 3. Policy 4. Structural 5. Programmatic 6. Human rights</td>
<td>This relationship is not addressed directly, although the following question is posed in the programmatic dimension: Does the specific program make sense in an integrated system based on primary health care?</td>
</tr>
<tr>
<td>Shigayeva, Coker, 2014 (14)</td>
<td>Analyze and conceptualize sustainability and the relationship between the concepts of sustainability and integration</td>
<td>Systematic review of the literature on conceptual or analytical sustainability frameworks and empirical studies</td>
<td>Authors posit five characteristics of a sustainable program: 1. Ability to govern, lead, and manage 2. Resources and capacity to plan and implement 3. Adaptation, renewal, flexibility 4. Building of relationships and interactions 5. Demonstration of results and achievement of objectives</td>
<td>Integration is considered a facilitator of sustainability, although not the only one. However, the role of integration with other components of the health system is specific to the context and hard to predict.</td>
</tr>
<tr>
<td>Atun, et al., 2009 (18)</td>
<td>Construct an analytical integration framework based on the critical functions of the health system</td>
<td>Review of theoretical and empirical studies on the adoption and dissemination of innovations in health systems</td>
<td>Authors define integration as a 3-stage evolutionary process: 1. Adoption 2. Dissemination 3. Assimilation</td>
<td>Adoption, dissemination, and assimilation require alignment of the intervention with health system functions. It is assumed that this integration will determine the sustainability of the program</td>
</tr>
<tr>
<td>Gruen, et al., 2008 (13)</td>
<td>Construct an empirical framework for understanding sustainability and use it in planning</td>
<td>Systematic review of the literature on health program sustainability</td>
<td>Interaction between the health problem, the “drivers” of the program (including actors such as donors) and the program itself. The 3 interactions are called: 1. The quality cycle 2. Political economy 3. Definition of the problem</td>
<td>Integration is not directly addressed as a factor in sustainability. It is mentioned that sustainability is likely when the system’s components are connected and aligned</td>
</tr>
<tr>
<td>Pluye, et al., 2004 (12)</td>
<td>Determine which organizational structures generate sustainability and at what stage this begins</td>
<td>Review of empirical works on program sustainability</td>
<td>Authors posit two dimensions of sustainability analysis: 1. Social structures that sustain the programs: • Organizational (routines) • Institutional (standards) 2. Time: • Sustainability does not occur in the final stage; instead, it is a process that occurs in tandem with a program’s implementation</td>
<td>The design of routines and standards includes elements of program integration. The presence of standardized routines is a way of integrating an intervention</td>
</tr>
</tbody>
</table>

Integration as a factor that facilitates it. Integration, however, has a different meaning in each case. Gruen et al. believe it is necessary to explore interactions between the drivers of change and program components in each particular context in order to analyze the determinants of sustainability (14). Formal structures and relationships are important, but so are the informal relationships that guide human behavior. Shigayeva and Coker, in contrast, understand integration as part of a program’s characteristics and take into account the interaction among program components in the organization in which they operate and with the rest of the organizations in the health system (15).

Finally, Atun et al. exclusively analyze integration, which they define as the expansion process, pattern, adaptation rate, and eventual assimilation of an intervention in each critical function of the health system—a concept similar to the concept of sustainability used in the other studies (19).

Political and institutional factors as drivers of change

All the articles reviewed address political and institutional aspects, although in ways that differ significantly. Oberth and Whiteside include political sustainability (the support of critical actors) and programmatic sustainability (integration of the programs in the health system) as necessary ingredients for comprehensively addressing sustainability, although they do not discuss the relationship between these political and institutional dimensions (12).

Pluye et al., in turn, focus on institutional analysis, assuming sustainability as a growing process of institutionalization, which is interpreted as the development of routines and the standardization of new programs or interventions. The less visible political process emerges to the extent that engagement and the relationship between social actors are considered some of the factors that influence the institutionalization process. However, given the theoretical nature of the article, institutional dimensions of the health system are not revealed as part of the analytical dimensions (13).

Gruen et al. stress the political process to explain the influence of actors and their interests, values, ideas, and capacity...
to mobilize resources—all of them elements considered drivers of change in the sustainability of programs (14).

Finally, Shigayeva and Coker (15) and Atun et al. (19) explicitly describe both political processes—understood as the involvement of actors and leadership in the processes of change—and institutional dimensions, and analyze health programs and systems. The institutional approach of Shigayeva and Coker highlights governance, the health services, and financing models as key aspects of sector institutionality (15).

Characterization of the process of change

Although all the articles reviewed assume that sustainability and integration must be interpreted dynamically, they differ in how they analyze them. While Oberth and Whiteside only identify different dimensions of sustainability without mentioning explicit relationships that trigger processes of change in that direction (12), Plye et al. (13) and Atun et al. (19) employ an evolutionary perspective with gradual stages that characterize the maturation of the sustainability or integration process. Finally, Gruen et al. (14) and Shigayeva and Coker construct analytical frameworks that assume the existence of relationships among the factors that influence sustainability, without considering evolutionary predetermination of the process triggered.

DISCUSSION

In this section, the sustainability of the EPI is interpreted through the three lines of analysis that appear in the literature analyzed in the context of the Strategy for Universal Access to Health and Universal Health Coverage.

Sustainability and integration as the object of analysis

With regard to sustainability and integration, the Strategy makes it possible to include the dimensions of EPI integration as a factor that facilitates the program’s sustainability. While the sustainability of the EPI is associated with the growing institutionalization of its norms and standards and its inclusion in the agenda for health systems strengthening (13, 19), its integration is analyzed through the dimensions related to the different lines of this Strategy.

The strategic line of broadening access to health services, which promotes a comprehensive, integrated, people- and community-centered model of care, requires an EPI management model that contains mechanisms for coordination and integration with the organizational structures that manage comprehensive health services for specific populations and territories, especially at the first level of care, understanding immunization as a key component of primary prevention. In this same vein, the logistical component of vaccines is an essential element of immunization program operations that can be strengthened with the achievement of synergies and economies of scale with part of the rest of the health system’s logistics. Furthermore, the immunization program’s standards of coverage and protocols are complementary ingredients of the storehouse of clinical guidelines and standards of care that health teams employ as working tools and thus offer opportunities for greater integration.

The strategic line of leadership and governance includes the need to strengthen the role of the health authorities in policy-making and health programs. Both health policy-making and the design and implementation of monitoring mechanisms should be addressed comprehensively, and within them, promotion and prevention interventions associated with the EPI must be integrated into health systems and services transformation processes.

The strategic line associated with improving and increasing financing includes integration in the framework of innovations in the budget management model, in order to guarantee the necessary resources and align the incentives that facilitate the optimal development and performance of integrated health services networks. As a complement, the national and regional integration of vaccine procurement has been promoted, as exemplified by the PAHO Revolving Fund, which, with the specific objective of strengthening the EPI in the Member States, has facilitated access to vaccines at a reduced cost (20).

The strategic line that promotes intersectoral action has major implications in this area. The EPI has been a flagship initiative for generating intersectoral action with its adoption of a territorial approach to improve its effectiveness (21). The new intersectoral initiatives advanced by the health services have much to gain and much to offer in entities for integration with the EPI (22).

Institutional and political factors

With regard to how institutional and political factors influence EPI sustainability, the explicit values of the Strategy, which is facing a variety of challenges, are: the right to health, solidarity, and equity in the health system transformation processes. Within this framework, political processes are considered the drivers of the institutional changes necessary for progress in this direction.

The Strategy also offers a critical analysis of the institutional limitations of health systems, understood as segmentation or fragmentation of the health services structure, together with evident problems in the accessibility and quality of the services. The EPI has been a real example of effective expansion of vaccination coverage in the Region for the population living in poverty and has therefore become a critical intervention for reducing inequities and expanding a system of universal coverage to the entire population. The current institutional and political challenges are related to the need to make immunization programs part of an agenda for transforming the health services structure and model of care. The aforementioned EPI integration dimensions facilitate the recognition of opportunities to address fragmentation in service delivery by strengthening comprehensive and integrated health services networks.

The political factors of the Strategy are reflected especially in the strengthening of health authority leadership. Within this framework, it should be recognized that the challenges of EPI sustainability must also be interpreted as part of a political process aimed at legitimizing a model of care that meets the health needs of the population and is part of a social protection system that guarantees the right to health through solidarity and equitable access to health services. For progress in this direction, the political sustainability of the EPI should be interpreted through the lens of its role in the implementation of the Strategy through partnerships among actors that permit the development of adequate joint leadership.
Processes of change

Although the literature analyzed offers two perspectives—one centered on characterizing the process of change and based on predefined stages (13, 19), and the other, on emphasizing the dynamic component (12, 14, 15)—its contributions fail to describe the complexity of the processes of change in the Region’s health systems. EPI sustainability is a process that is clearly concomitant with other processes, such as health services strengthening and the institutional transformation of health systems as a whole. If this perspective is not incorporated, there is a risk that this discussion will be confined exclusively to an attempt to sustain or obtain financial resources for EPI operations.

The Strategy makes significant contributions in this regard, since it assumes that the sustainability of priority programs should be addressed by strengthening and transforming the health systems. Even though it assumes that the political and institutional characteristics of each country should be considered in the design and implementation of these processes, it underscores the importance of monitoring and evaluating the efforts made in their deployment to identify and characterize the progress, challenges, and critical obstacles in the transformation processes.

Identifying and classifying the dimensions of EPI integration in the health system through the Strategy’s lines of action can serve as a unit of analysis in the monitoring and evaluation of these transformation processes. A work agenda going forward could focus on measuring and characterizing the aforementioned progress in each of the dimensions of EPI integration in the health systems in the context of the Strategy, considering the institutional and political complexity of countries with different levels of health system development.

In conclusion, it should be stated, first of all, that this article seeks to contribute to a theoretical and practical discussion that has yet to take place on the challenges faced by the EPI in the Region of the Americas, by interpreting the contributions made in recently published analytical frameworks in the context of the Strategy for Universal Access to Health and Universal Health Coverage. This approach makes it possible to systematize three lines of analysis.

Second, although the concepts of integration and sustainability are not uniformly interpreted in the literature analyzed, consideration is given to the merits of an approach that considers integration a facilitating factor of EPI sustainability. This approach makes it possible to recognize policy options for EPI integration associated with the different lines of the Strategy for Universal Health. This framework also underscores the need to recognize the dynamic of the EPI’s integration process and sustainability associated with the strengthening and transformation of the health system as a whole.

Third, integrating the EPI into the health system and building its sustainability in terms of successfully addressing current and unmet challenges is something that cannot occur in a vacuum. On the contrary, the effectiveness of these strategies depends on the presence, strengthening, and transformation of organizational and institutional structures that facilitate the participation of actors with the technical and political capacity to guarantee their implementation. Thus, consideration is given to the political processes that legitimize an agenda for including the EPI in the Strategy for Universal Health as part of health systems strengthening.

Finally, sustainability is understood as a work in progress, a transition process contingent on the characteristics of each specific context. This factor is directly related to the Strategy for Universal Health both as a process and through its situational nature. Thus, in each national and subnational scenario, it is necessary to recognize the challenges of integrating the EPI into an agenda for expanding the conditions of universal access and coverage.

Financing. This study has not received financing.

Conflicts of interest. The authors declare that they have no conflicts of interest.

Disclaimer. The opinions expressed in this manuscript are the responsibility of the authors and do not necessarily reflect the views or policy of the RPSP/PAJPH and/or PAHO.

REFERENCES

RESUMEN
El desafío de la sostenibilidad de los programas ampliados de inmunizaciones

Objetivo. Analizar la sostenibilidad y la integración de los programas prioritarios en el marco de la Estrategia para el acceso universal a la salud y la cobertura universal de salud (Salud Universal) de la Organización Panamericana de la Salud de 2014. Métodos. Se llevó a cabo una revisión no sistemática de la bibliografía reciente enfo- cada al análisis de la integración y la sostenibilidad. Resultados. El principal resultado que se extrae de la bibliografía revisada es la necesidad de abordar la sostenibilidad de tal modo que se superen los límites de cualquier análisis restringido a la sostenibilidad financiera. Aunque la integración y la sostenibilidad no se interpretan de forma homogénea, sobresale un abordaje que contempla la integración como un factor facilitador del proceso de sostenibilidad del PAI. Conclusiones. La efectividad de las estrategias de integración del PAI depende en buena medida de que se consideren la presencia, el fortalecimiento y la transformación de las estructuras organizativas e institucionales que faciliten la participación de los actores con capacidad técnica y política para garantizar sus procesos de implementación. De esta forma, se podrán ponderar los procesos políticos que legitiman una agenda de inclusión del PAI en la Estrategia de salud universal y, por tanto, como parte integrante del fortalecimiento de los sistemas de salud.

Palabras clave
Integración de sistemas; acceso universal a servicios de salud; sistemas de salud.

RESUMO
O desafio da sustentabilidade do Programa ampliado de imunização

Objetivo. Avaliar a sustentabilidade e a integração do Programa ampliado de imunização (PAI) como parte da estratégia de acesso universal à saúde e cobertura universal de saúde da Organização Pan-Americana da Saúde (OPAS) de 2014. Métodos. Uma revisão não sistemática da literatura científica recente foi realizada dando enfoque à análise da integração e sustentabilidade do PAI. Resultados. O principal achado é a necessidade de contemplar a sustentabilidade além da análise de sustentabilidade financeira. Embora a integração e a sustentabilidade não sejam interpretadas de forma homogênea na literatura, são destacadas as virtudes de uma abordagem que concebiam a integração como um fator facilitador do processo de sustentabilidade do PAI. Conclusões. A efetividade das estratégias de integração do PAI depende em grande parte da existência, fortalecimento e transformação das estruturas organizacionais e institucionais facilitando a participação dos interessados com capacidade técnica e política para garantir os processos de implementação. Desse modo, será possível examinar com atenção os processos políticos que legitimam a agenda de inclusão do PAI na estratégia de saúde universal e, portanto, como parte integrante do fortalecimento dos sistemas de saúde.

Palavras-chave
Integração de sistemas; acesso universal a serviços de saúde; sistemas de saúde.