Objectives: to analyze the actions carried out by nurses for the control and eradication of vaccine-preventable diseases in basic health care. Method: integrative review with the following research question <<Which actions that contribute to the control and eradication of vaccine-preventable diseases in Basic Health Care are carried out by nurses? >> Collection of data related to the period from 2006 to 2012 was performed in LILACS, MEDLINE and CINAHL databases. Five articles were selected and analyzed using the technique of content analysis. Results: actions geared toward technical and operational aspects and guidelines directed to individuals receiving health care, both contemplated in the National Policy on Basic Health Care, were prevalent. Conclusion: the shortcomings identified allow confirming the relevance of the relationship between the content of the Vaccination Procedures Manual and the National Policy on Basic Health Care. Descriptors: Nursing in Public Health; Control of Communicable Diseases; Immunization.

RESUMO

RESUMEN
Objetivos: analizar las acciones realizadas por los enfermeros para el control y erradicación de enfermedades inmunoprevenibles en la atención básica de salud. Método: revisión integradora con la siguiente pregunta <<¿Qué acciones que contribuyen al control y erradicación de enfermedades inmunoprevenibles en la atención básica de salud son llevadas a cabo por los enfermeros? >> La búsqueda de datos del periodo comprendido entre 2006 y 2012 se efectuó en las bases de datos LILACS, MEDLINE y CINAHL. Cinco artículos fueron seleccionados y analizados mediante la técnica de análisis de contenido. Resultados: predominaron las acciones orientadas hacia los aspectos técnico-operativos y las directrices dirigidas al individuo recebiendo atención, ambas contempladas en la Política Nacional de Atención Básica. Conclusión: las deficiencias identificadas permiten confirmar la importancia de la relación entre el contenido del Manual de Procedimientos para la Vacunación y la Política Nacional de Atención Básica. Descriptores: Enfermería en Salud Pública; Controle de Doenças Transmissíveis; Imunização.
INTRODUCTION

Since 1973, the general goal of the National Immunization Program (NIP) has been helping to keep polio eradicated and eradicate the other vaccine-preventable diseases that are included in the basic vaccination calendar. Accordingly, vaccine-preventable diseases are those eligible for immunization.

In order to operationalize this goal mentioned, the NIP has some manuals that guide the actions of the professionals integrating health care teams. Among them, the Vaccination Procedures Manual (VPM) stands out. This manual presents actions comprising four phases: 1) planning; 2) technical and administrative aspects of the vaccination activity; 3) procedures for vaccines administration; and 4) monitoring and assessment of vaccination activities.

The planning phase has its foundation on analyzing the health situation, carried out through the identification of determinant and conditioning factors, as well as demographic, economic and social aspects. It includes the analysis of: a) the current management model, budget and financial resources, health care model, strategic resources, and the participation of the population; b) population estimates and occurrence of vaccine-preventable diseases; and c) demarcation of geographical area of operation and resources available.

This phase also prescribes: definition and quantification of goals; establishment of strategies for vaccination (routine vaccination, campaign, blocking); the need to use every opportunity of vaccination; definition of human resources and materials (including training); and health education and mobilization of the population.

For carrying out health education and mobilization of the population, the VPM recommends that: there must be a link between health services and community organizations; training of community members, mainly for identifying signs and symptoms of vaccine-preventable diseases; training of health teams in order to be critically aware of health conditions of the population and the conditions of social, economic, political and cultural reality; and also that information must be disseminated (in the waiting room and home visits) through activities in the community.

The phase of technical and administrative aspects of vaccination activities is basically geared towards the vaccination room. This phase includes: organization of equipment and materials required for the routine of service; dynamics of the vaccination room (team functions, printed material, routine); care of room cleaning including the proper disposal of garbage; procedures for preservation of immunobiologicals (care for use of thermometers, refrigerator and thermal box); procedures in emergency situations (in case of defects in the refrigerator or electric power outages); and guidelines for considering immunobiologicals under suspicion.

The phase of technical and administrative aspects of vaccination activities regards procedures prior to the administration of vaccines (hand-washing, solutions restoration and basic procedures in accordance with administration routes of immunobiologicals), record of activities, organization of vaccination room archives, and search of the absentees.

The phase procedures for vaccines administration is related to immunobiologicals administration and contraindications or postponement of vaccination. Finally, the phase monitoring and assessment of vaccination activities consists in monitoring activities and the assessment of results and impacts.

According to the phases mentioned and the official documents of the Ministry of Health, for the control and eradication of vaccine-preventable diseases, the development of actions that encompass different action strategies, as well as health education, is necessary in order to provide adequate use of immunobiologicals and vaccination itself by a team of health professionals.

The health team—which is closely related to the control of vaccine-preventable diseases—is inserted into primary health care due to the dynamics that involves this scenario, among others, with regard to actions directly related to vaccination. From this perspective and to achieve the central goal of the NIP, the nurses, as member of the health team, are committed to participate/create strategies for this purpose. This view is reaffirmed in the Nursing Professionals’ Code of Ethics. It mentions that nurses participate in actions established in public health policies.

In this sense and for the purpose of this study, nurses are committed both with the guidelines of the NIP and the National Policy on Basic Health Care (NPBH), since basic health care is the preferred scenario for the control and eradication of vaccine-preventable diseases.
Therefore, it is understood that nursing participates in actions that contribute to the control and eradication of vaccine-preventable diseases; however, not only when immunobiologics are administered, but also when nursing is responsible for the cold chain or develops the assessment of epidemiological situations.

Recognizing the active participation of nurses in the control of vaccine-preventable diseases, this study aims to contribute to the discussion on the participation of nurses as members of the health team in that context. From this perspective, the ethical and professional commitment in the field of health as a right stands out.

Therefore, the goal of this study is:

- To analyze the actions carried out by nurses in the control and eradication of vaccine-preventable diseases in basic health care.

**METHOD**

Integrative review is conceived as the broadest methodological approach as regards revisions. It is characterized as a strictly methodological strategy, being of important relevance to the field of nursing. This integrative review was performed according to the following stages: definition of the research question; selection of keywords; selection of databases; application of inclusion and exclusion criteria; identification of studies selected; categorization of studies selected; and analysis and interpretation of results.

In this way, the following question to be searched in the literature was defined: Which actions that contribute to the control and eradication of vaccine-preventable diseases in Basic Health Care are carried out by nurses?

The following keywords were used: Nursing; Immunization; Primary Health Care; and Control of Communicable Diseases (established after consulting the Health Sciences Descriptors database [DECS]). These keywords were used to find productions in the following electronic databases: Latin American and Caribbean Health Sciences Literature (LILACS); Medical Literature Analysis and Retrieval System Online (MEDLINE); and Cumulative Index to Nursing and Allied Health Literature (CINAHL). This option was based on the fact that these databases provide scientific productions directed, among others, to the area of Nursing, with exception of CINAHL that stores complete coverage of nursing journals in English. Specifically in CINAHL database, the keywords were translated into English (in accordance to DECS) as follows: Nursing; Immunization; Primary Health Care; and Preventable Diseases Control.

The databases mentioned were accessed from December 2012 to January 2013, through the Health Virtual Library (HVLI) and directly on CINAHL database through the Journal Portal of CAPES (Government agency linked to the Brazilian Ministry of Education in charge of promoting high standards for post-graduate courses in Brazil).

The following inclusion criteria were considered: original scientific articles published from 2006 to 2012; articles approaching the control of vaccine-preventable diseases and nursing in an articulated form; articles referring to health care in the Brazilian reality; and articles written in Portuguese, English or Spanish. Consequently, exclusion criteria considered scientific articles that were not available with full texts and with online access.

The keywords were inserted individually in order to check the number of productions indexed in LILACS, MEDLINE (Figure 1) and CINAHL (Figure 2) databases. The purpose of this procedure was to identify productions for composing the study. The keywords were inserted in articulated form.

<table>
<thead>
<tr>
<th>Keywords</th>
<th>MEDLINE</th>
<th>LILACS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Na Integra</td>
</tr>
<tr>
<td>Primary Health Care</td>
<td>46,994</td>
<td>5,951</td>
</tr>
<tr>
<td>Nursing</td>
<td>375,547</td>
<td>9,963</td>
</tr>
<tr>
<td>Immunization</td>
<td>111,817</td>
<td>14,456</td>
</tr>
<tr>
<td>Control of communicable diseases</td>
<td>14,743</td>
<td>1,428</td>
</tr>
<tr>
<td>Basic Health Care AND Nursing AND Immunization AND</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Immunization AND Control of communicable diseases</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Primary Health Care AND Nursing AND Immunization</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>Nursing AND Immunization</td>
<td>859</td>
<td>61</td>
</tr>
</tbody>
</table>

Figure 1. Number of scientific productions which emerged through articulation of the keywords in MEDLINE and LILACS electronic databases.

Figure 1 shows that there were no productions identified with all keywords articulated in LILACS and MEDLINE databases.

With the three main keywords (i.e., Primary Health Care, Nursing and Immunization), the number of productions with full texts was
unimpressive. Therefore, we decided to use the keywords Nursing and Immunization.

Still, from this perspective, we used this same search strategy in CINAHL database. However, it offered search options that include some of the criteria established, as seen in Figure 2.

<table>
<thead>
<tr>
<th>Keywords</th>
<th>No. of productions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Health Care</td>
<td>8,813</td>
</tr>
<tr>
<td>Nursing</td>
<td>82,878</td>
</tr>
<tr>
<td>Immunization</td>
<td>3,915</td>
</tr>
<tr>
<td>Preventable diseases control</td>
<td>19</td>
</tr>
<tr>
<td>Basic Health Care AND Nursing AND Immunization AND Preventable diseases control</td>
<td>N/A</td>
</tr>
<tr>
<td>Basic Health Care AND Nursing AND Immunization</td>
<td>20</td>
</tr>
<tr>
<td>Nursing AND Immunization</td>
<td>459</td>
</tr>
</tbody>
</table>

Figure 2. Number of scientific productions which emerged through articulation of keywords in CINAHL electronic database selecting the following options: scientific productions; productions from 2006 to 2012; and full text.

In this way, it is worth noting that as occurred in MEDLINE and LILACS, no production was identified through articulation of all keywords. As a way of standardizing the search, we chose to analyze the productions that emerged through the articulation of the keywords Nursing and Immunization.

Thereby, we analyzed the abstracts of 61 scientific articles from MEDLINE, 25 from LILACS and 20 from CINAHL, considering the following elements: title; authors; journal; year of publication; goals; method; and results, in order to assess them according to the inclusion and exclusion criteria not previously considered.

This process pointed out that there were no productions that met all criteria for inclusion in MEDLINE and CINAHL, unlike LILACS that featured five scientific articles to compose the study. The analysis of these five articles was performed by means of an instrument related to the following aspects: identification of the article; scenario of the study; methodological characteristics; and assessment of the methodological strictness. The assessment with respect to the identification of articles allowed to draw Figure 4:

<table>
<thead>
<tr>
<th>Title</th>
<th>Journal</th>
<th>Authors</th>
<th>Country</th>
<th>Language</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW FEVER: nursing guidelines for travelers’ health in basic health units</td>
<td>Revista Gaúcha de Enfermagem</td>
<td>Mallet, A. P.;</td>
<td>Brazil</td>
<td>Portuguese</td>
<td>2010</td>
</tr>
<tr>
<td>Vaccination: nursing actions and mothers and/or caregivers’ knowledge</td>
<td>Revista da Rede de Enfermagem do Nordeste</td>
<td>Oliveira, V. G. et al.</td>
<td>Brazil</td>
<td>Portuguese</td>
<td>2010</td>
</tr>
<tr>
<td>Aspects related to the management and preservation of vaccines at health centers in northeastern Brazil</td>
<td>Ciência &amp; Saúde Coletiva</td>
<td>Luna, G. L. M. et al.</td>
<td>Brazil</td>
<td>Portuguese</td>
<td>2011</td>
</tr>
</tbody>
</table>

Figure 4. Identification of articles regarding title, journal, authors, journal’s country of origin, language, and year of publication.

As can be seen in Figure 4, the articles had been published in Portuguese from 2009 to 2011, in scientific journals produced by institutions located in the Southeast, South and Northeastern regions of Brazil, whose authors were predominantly identified as nurses.

Another aspect assessed was the scenario where the data of the studies were obtained. They were: basic health units (BHU); family’s health units and centers; and the database of...
the Information System of Post-Vaccination Adverse Events (IS-PVAE).

With respect of the analysis of the methodological characteristics of articles, we identified that all studies had been approved in research ethics committees, in accordance with Resolution 196/96. In this, the analysis allowed identifying that the methods were: transversal descriptive; exploratory and descriptive, one with qualitative approach and another with quantitative approach; and documentary and descriptive research with quantitative approach.

Finally, the methodological strictness was analyzed considering the description of: method used; participating subjects; inclusion and exclusion criteria; intervention; and outcomes. In this way, it was possible to confirm that all studies showed methodological strictness.

The analysis of the contents of the selected articles had the purpose to identify the actions developed by the nurses that contribute to the control of vaccine-preventable diseases in basic health care. The actions identified were categorized with reference to the four phases set out in the VPM, organized with the technique of content analysis and discussed with respect to the NPBH.

RESULTS

We identified the actions developed by the nurses in the scientific productions analyzed and these actions were organized with reference to the four phases set out in the VPM. The following actions are in the planning phase, more specifically in relation to the use of every opportunity for vaccination, the training of human resources and provision of material resources.

Use of every opportunity for vaccination

- Referral of users to the vaccination room: “… 83.3% reported that CSF professionals referred the user to the vaccination room […]”.
- Recommend other vaccines that are not mandatory for travelers: “In addition to the yellow fever vaccine, the team recognizes the need to recommend other vaccines that are not mandatory for travelers, following the guidance of the Immunizations Center of SMS”.

Human resources training

- Participate in training: “[…] many of the nursing professionals reported that they did not participate in training last year […]”.
- Participate in training on immunization: “Through the results, it is confirmed that 26 respondents (37.1%) participated in training on immunization […]”.

Provision of material resources

- Request vaccines monthly: “vaccines monthly request”.

The following actions are inserted in the phase of technical and administrative aspects of the vaccination activity, and these actions are aimed at preservation of immunobiologicals (cleaning of the refrigerator and basic procedures in emergency situations), hand-washing—which is a procedure prior to the administration of vaccines—and records in standardized printed material at national instance.

Preservation of immunobiologicals

- Cleaning of the refrigerator
- Perform the cleaning of the immunobiologicals refrigerator: “With respect to the cleaning and defrosting of the immunobiologicals refrigerator, 51.4% responded that they performed the cleaning every 15 days”.
- Perform the cleaning of the refrigerator every two weeks: “biweekly cleaning of the refrigerator”.

- Basic procedures in emergency situations
- Make arrangements if the refrigerator temperature is above the level considered appropriate: “It was observed that 35.7% informed the temperature rise to the Municipal Health Department and 32.9% reported a variety of conducts which do not comply with the NIP”.

Procedure prior to the administration of vaccines

- Perform hand-washing: “[…] 8.3% of professionals responsible for the administration of the vaccines did not perform hand-washing […]”.

Recording in standardized printed material at national instance

- Fill out monthly charts of doses administered: “monthly charts of doses administered”.
- Record in medical records: “signs or that recording in medical records is also one of the work objects”.
- Filling out temperature charts: “not all professionals filled out the temperature charts”.

In turn, the following actions are prescribed in the phase procedures for administering vaccines, being related to the administration of immunobiologicals itself and actions that involve their administration.

Immunobiologicals administration
- Administration of immunobiologics
  doses: “in addition to the administration of
  the doses, work in the vaccine room is”.

**Actions that involve immunobiologics**

administration

- Guide on the possible post-vaccination
  reactions: “[…] the guidelines on the possible
  post-vaccination reactions were not detected
  […]”.

- Meet suspected adverse reactions to the
  vaccine against yellow fever and fill out a
  form: “The nurses, for the most part, direct
  their attention to meet suspected adverse
  reactions to the vaccine against yellow fever,
  filling out the specific notification form for
  these demands.”

- Meet the PVAE that are the focus of
  professional activities: “[…] PVAE focus of the
  nursing practice”.

Actions prescribed in the phase of
monitoring and assessment of vaccination
activities were not identified. However,
actions that were not prescribed in the phases
were identified, such as:

- Provide guidelines regarding the
  prevention of other communicable diseases,
  “According to the target, relevant guidelines
  are provided regarding the prevention of
  other communicable diseases”.

- Provide recommendations concerning the
  use of repellent and appropriate clothing for
  body protection: “The importance of the use
  of repellent and appropriate clothing for body
  protection is reported in order to avoid
  contact with the vector of the disease,
  especially those targeted to areas of high
  mosquito population, forests and rivers”.

- Conduct educational actions with the
  mothers/caregivers: “With regard to nursing
  activities in the vaccination room, nurses
  claimed that the work objects in the
  vaccination room are […] educational actions
  with the mothers/caregivers”.

- Provide guidelines concerning vaccination
  against yellow fever: “[…] the guidelines
  pertaining to this immunobiological, mentioning
  the contraindications of the vaccine against
  yellow fever […] ten-year validity and the
  recommendation of application from nine
  months of age […] possible adverse reactions
  […]”.

- Explain the procedures to be performed:
  “[…] 72.7% of professionals explained the
  procedures to be performed […]”.

The set of actions performed by nurses
identified in the literature allowed the
analysis and discussion in view of the NPBH,
in accordance to the goals set for this study.

**DISCUSSION**

The VPM lists several actions organized into
four phases, which should be developed for
the control and subsequent eradication of
vaccine-preventable diseases. In this sense, as
a means of elucidating the way of
participation and contribution of nurses to the
development of these actions, we assessed
the actions prescribed in the four phases by
articulating them with the attributions of nurses
and/or the multiprofessional team of
basic health care described in the NPBH.

The analysis allowed confirming that the
actions of the planning phase are attributions
of the basic health care team. Differently, in
the phase of technical and administrative aspects of the vaccination activity, actions are
prescribed to be developed in the vaccination
room, which is under the professional
responsibility of nurses. It is a professional
responsibility because the nurses are the
“technical supervisor to monitor and evaluate
the development of the work performed in the
vaccination room”. The work—i.e., the
activities in the vaccination room—is
performed by the nursing team “with specific
training in handling, preservation and
administration of immunobiologics” and
exclusively supervised by the nurses.

The professional commitment of nurses in
the phase of technical and administrative aspects of the vaccination activity, as
evidenced earlier, is reaffirmed in the NPBH,
which establishes the specific attribution of
this category, i.e., “to perform procedures
 […] in accordance with established protocols.” Considering this attribution
mentioned, it can be affirmed that this phase
comprises specifically the commitment of the
nursing team.

Similarly, the phase of procedures for
vaccines administration is the technical
procedure itself, i.e., they are also
“procedures […] in accordance with
established protocols”, which is the specific
attribution of the nursing team.

Finally, the phase of monitoring and
assessment of vaccination activities is the
attribute of team members of basic health
care, as prescribed in the NPBH. This policy
mentions the team’s involvement in
“participating […] in the monitoring and
assessment of actions […]”, aiming at the
readjustment of the working process and
planning according to the needs, realities,
difficulties and possibilities analyzed.

From this understanding, it is possible to
affirm that the active participation of nurses

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in these four phases is prescribed in accordance with the VPM and the NPBH. Through the recognition of this participation, the actions identified in this investigation, in accordance with the NPBH, were discussed, not losing sight of the contribution of nurses in the control of vaccine-preventable diseases.

In this way, the actions identified in the articles analyzed were organized into two categories. The first refers to those related to technical and operational aspects of the vaccination activity that encompasses the following phases: planning (using every opportunity for vaccination, training of human resources and provision of material resources); technical and administrative aspects of the vaccination activity (preservation of immunobiologicals [cleaning of the refrigerator and basic procedures in emergency situations], procedure prior to the administration of vaccines, recording in standardized printed material at national instance); procedures for vaccines administration (immunobiologicals administration and actions that involve their administration). The second category refers to guidelines, which are actions that focus on the subjects receiving health care, i.e., service users.

In this sense, when the actions of the first and the second categories are assessed, it can be observed that they are included in the NPBH, both, in the guidelines and fundamentals, and in the specific attributions of nurses or general attributions of the basic health care team. On the other hand, when the VPM is assessed, it can be observed that those related to actions of the first category are more present. In other words, this manual includes issues that focus on the user, but not the guidelines identified in this study. These guidelines are related to: prevention of other communicable diseases; use of repellent and appropriate clothing for body protection; educational actions (including guidelines) for the mothers/caregivers; guidelines regarding yellow fever vaccination; and explanation (guidelines) regarding the procedures to be performed.

It is known that the VPM aims to provide theoretical subsidies so that the basic health care team can contribute to the control and subsequent eradication of vaccine-preventable diseases, since it is the goal of the NIP. Therefore, it is necessary to reflect on the scope of the PNI’s goal, because the technical and operational aspects are the issues that predominated in the VPM. It is recognized that the nurses must have the VPM linked to the NPBH as subside, in order to ground their professional performance in the control of vaccine-preventable diseases. With the strategy to provide guidance associated with technical and operational procedures, the possibility of controlling vaccine-preventable diseases becomes more comprehensive. That occurs because when attention is only given to technical and operational aspects, they culminate in actions whose final product is vaccination. It is worth noting that vaccination alone does not guarantee immunization of all individuals comprising the population, since this depends on the individual immunization response.

It is essential to consider the service user as a subject that needs to be focused on. According to the NPBH, there must be “displacement of the working process centered on procedures to a user-centered process.”

From this perspective, vaccination and technical and operational procedures are not enough for the control of vaccine-preventable diseases, as it was observed in the actions corresponding to the first category.

It should also be considered that it is vital to invest and carry out actions involving users’ lifestyles and access to services. Lifestyle perspective relates to the fact that there are vaccine-preventable diseases that can be prevented, for example by means of: “individual protection measures” (yellow fever); “hygiene educational measures” (hepatitis A); “education and disclosure of the problem” (hepatitis B); and “frequent hand-washing; avoid close contact with people who have signs or symptoms of influenza; avoid agglomerations and closed environments; adopt healthy habits, like balanced diet and fluid intake [...]” (Influenza). Similarly, the prospect of access to services include proper sanitation, garbage collection and water supply system (hepatitis A) in the health care service, in order to develop education in health/guidelines (most vaccine-preventable diseases), among others.

This approach focusing on users’ lifestyles and not only on technical and operational aspects generate “encouragement to the participation of users in order to expand their autonomy and capacity in the construction of health care for them and individuals and collectivities of the territory.” This contributes actively to health promotion and not only to disease prevention. With this positioning, control and eradication of vaccine-preventable diseases can be more effective, because the responsibility is shared...
between health professionals and the population.

CONCLUSION

Based on the analysis of the set of actions identified as developed by nurses in the control of vaccine-preventable diseases, it is observed that the literature focuses predominantly on the technical aspect of nursing directed at performing procedures, in addition to guidelines directed to the subject receiving health care, i.e., the user of the service. When considering the VPM, it is worth noting that the phase of monitoring and assessment of vaccination activities is not object of discussion in the literature, a fact that points out to a major shortcoming in the scientific production.

This study allows reaffirming the relevance of the relationship between the contents of the VPM and the NBPH as guideline for the role of nurses in the control of vaccine-preventable diseases. At the same time, it raises the critical reflection on the role of nursing in the literature. In addition, it also points to the importance of field research regarding health care practice related to the control of vaccine-preventable diseases, as ethical and professional commitment in the field of health as a right.

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Nursing and control of vaccine-preventable...