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REVIEW ARTICLE

Advances in early childhood development: from neurons to large scale programs☆

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Abstract Early childhood development (ECD) is the foundation of countries' economic and social development and their ability to meet the Sustainable Development Goals (SDGs). Gestation and the first three years of life are critical for children to have adequate physical, psychosocial, emotional and cognitive development for the rest of their lives. Nurturing care and protection of children during gestation and early childhood are necessary for the development of trillions of neurons and synapses necessary for healthy development. ECD requires access to good nutrition and health services from gestation, responsive caregiving according to the child's developmental stage, social protection, child welfare, and early stimulation and learning opportunities. Six actions are recommended to improve national ECD programs: expand political will and funding; create a supportive, evidence-based policy environment; build capacity through inter-sectoral coordination; ensure fair and transparent governance of programs and services; increase support for multidisciplinary research, and promote the development of leaders. Mexico has made significant progress under the leadership of the Health Ministry but still faces major challenges. The recent creation of a national inter-sectoral framework to enable ECD with the support of international organizations and the participation of civil society organizations can help overcome these difficulties.

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Avances en el desarrollo infantil temprano: desde neuronas hasta programas a gran escala

Resumen El desarrollo infantil temprano (DIT) es la base del desarrollo económico y social de los países y de su capacidad de cumplir con los Objetivos de Desarrollo Sostenible (ODS). La gestación y los primeros 3 años de vida son fundamentales para que los niños tengan un desarrollo físico, psicosocial, emocional y cognitivo adecuado para el resto de sus vidas. La crianza y el cuidado cariñoso y sensible a las necesidades de los niños durante la gestación y la primera infancia son esenciales para el desarrollo de los billones de neuronas y trillones de sinapsis necesarias. El DIT requiere de acceso a buena nutrición y servicios de salud desde la gestación, crianza sensible de acuerdo a la etapa de desarrollo del niño, protección social y del bienestar del niño, y oportunidades de estimulación y aprendizaje temprano. Para mejorar el DIT a nivel nacional se recomiendan seis acciones con fuerte participación de la sociedad civil: expandir la voluntad política y financiamiento, crear un entorno de políticas favorables basadas en evidencia, construir capacidad con coordinación intersectorial, asegurar una gobernanza justa y transparente de los programas y servicios, aumentar apoyo a la investigación multidisciplinaria y promover el desarrollo de líderes. México ha logrado avances importantes en DIT bajo el liderazgo del Sector Salud, pero enfrenta retos significativos para implementar estas recomendaciones. La reciente creación de un marco nacional intersectorial favorable al DIT con apoyo de los organismos internacionales y la participación de la sociedad civil pueden ayudar a sobreponer estos retos.

1. Introduction

Human development, which is the basis of social capital and the economic development of countries, is based on a process where different skills are developed at different times, following a continuous sequence that builds on skills acquired from the beginning of life if the necessary conditions exist. These include the senses, motor, cognitive, linguistic, and socio-emotional skills; and self-regulation of behavior and emotions. That is why investing in improving child development is central to enable countries to meet the Sustainable Development Goals (SDGs).[1] The healthy development of all girls and boys is necessary for countries to grow economically in an equitable and sustainable way. Returns on early childhood investments are very high and therefore are considered highly cost-effective.[2] Unfortunately, an alarming 43% of children under five years old (249 million) in low- and middle- income countries are at risk of poor development due to the chronic poverty and malnutrition in which they live. This number increases if we also take into account other risk factors for poor early childhood development (ECD) such as the low level of maternal education and child abuse.[3] There are differences in the distribution of poor ECD between and within countries, explained by the great inequality and social injustice. For this reason, international organizations have identified as a priority for the 21st century to improve ECD, paying particular attention to the most vulnerable. Therefore, a key question is what do we know about how ECD can be improved?

The recent publication of the new Lancet ECD Series offers a historic opportunity for governments to implement large - scale evidence - based programs. The core of this series is three articles that update the knowledge on progress in the neurosciences,[3] evidence-based bundles of intervention,[4] the implementation and cost of effective ECD large - scale programs[5] and the cost to society of not investing in ECD.[5] Here forward, we summarize the lessons learned from this new series and our country's progress and challenges towards building a comprehensive ECD policy.

2. Advances in Neurosciences

Brain cells or neurons; begin to multiply rapidly from gestation. By four weeks of pregnancy, these cells multiply at a rate of 250,000 neurons per minute. At birth, the newborn has 100 billion neurons, equivalent to all the stars in the universe. During the third trimester of gestation, the brain begins to establish connections or synapses to facilitate communication between neurons and establish the neurological pathways, which are the basis of human development.