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ARTICLE

Early Intervention for Special Needs Children in Malaysia: A Forward-Looking Perspective Inspired by the ANIS Selangor Initiative

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Abstract

Early intervention plays a crucial role in supporting the development, educational, and social outcomes of children with disabilities. In Malaysia, despite strong policy commitments to inclusive education, significant gaps continue to exist specifically in early identification, access to services, and system-wide coordination. The prominent challenges include inconsistent screening practices, reliance on privatised and specialist-led models, unequal access between urban and rural regions, and limited data infrastructures to monitor developmental outcomes. Learning from lessons on emerging state-wide initiatives such as ANIS Selangor, this Perspective paper outlines a forward-looking agenda for strengthening Malaysia's early intervention ecosystem. Five strategic actions are proposed: (1) implementing universal developmental screening from ages two to six; (2) establishing hybrid service delivery that integrates competency-based centres, telehealth, and mobile outreach; (3) developing a tiered workforce through competency-based micro-credentials; (4) creating a national early intervention registry with equity dashboards; and (5) adopting sustainable co-financing models that combine federal-state partnerships with diversified funding streams. These proposals are in line with global evidence and WHO Nurturing Care Framework while responding to Malaysia's unique socio-cultural and infrastructural context. Advancing these reforms can transform early intervention from fragmented provision into a coherent, equitable, and future-ready system that strengthens national progress toward SDG 4 Quality Education and inclusive early childhood development.

Keywords: Early Intervention; Developmental Screening; Inclusive Education; Intervention Policy; SDG 4; Malaysia

1. INTRODUCTION

Early childhood is a decisive period for cognitive, social, and emotional development. Global guidance, including the World Health Organization's Nurturing Care framework, emphasizes integrated strategies that combine health, nutrition, responsive caregiving, and early learning to optimize developmental outcomes [14]. In Malaysia, inclusive education policies have expanded opportunities for children with disabilities, yet service fragmentation and late identification remain significant barriers. Many children with developmental delays are not systematically screened after 18 months, leaving a critical gap until school entry [2,9].

In Malaysia, national commitments to inclusive education and disability rights have grown substantially. Nonetheless, significant gaps persist in early identification, access to quality intervention, and equitable support for families. Challenges include inconsistent screening across states, workforce shortages, financial barriers, and limited data systems to monitor outcomes. State-led programmes such as the Anak Istimewa Selangor (ANIS) initiative demonstrate the potential of decentralized innovation, offering comprehensive screening, parent education, and subsidized intervention services at scale. These emerging models offer valuable lessons for national transformation.

This Perspective proposes five forward-looking strategies to strengthen Malaysia's early intervention ecosystem: (1) universal developmental screening from ages two to six; (2) hybrid service delivery leveraging community hubs and telehealth; (3) tiered workforce development supported by micro-credentials; (4) national data and equity monitoring systems; and (5) sustainable co-financing models. These proposals are inline with international evidence with Malaysia's socio-cultural context and policy directions while advancing the broader aims of Sustainable Development Goal (SDG) 4 on inclusive and equitable quality education.

2. MALAYSIA'S EARLY INTERVENTION LANDSCAPE AND PERSISTENT GAPS

Despite national awareness campaigns and increased diagnostic services, many Malaysian children with developmental delays are not identified until preschool or early primary school. Formal screening often ends after the 18-month checkup at public health clinics, creating a multi-year gap during which developmental concerns may go undetected. International research consistently shows that delays identified after age four are harder to remediate due to diminishing neuroplasticity and delayed exposure to structured support [7].

Access to intervention services varies by geography and socioeconomic status. Urban families are more likely to have access to private therapy centers, while rural communities, especially in Sabah and Sarawak, face long travel distances, limited specialists, and higher costs. Public early intervention units are constrained by long waitlists and limited staffing. The absence of nationally standardized referral pathways means caregivers often navigate a complex system of clinics, preschools, and private providers with minimal guidance [12].

Moreover, early intervention in Malaysia is heavily dependent on specialist-led models, despite global evidence demonstrating the effectiveness of parent-mediated and community-based approaches [16]. Without robust workforce pipelines, the system struggles to meet rising demand. These gaps underscore the need for forward-looking reforms.

3. FORWARD-LOOKING PERSPECTIVES

The following proposals offer a pathway toward a more coherent, equitable, and sustainable early intervention ecosystem.

3.1. Universal Developmental Screening

Universal developmental screening (UDS) ensures that developmental concerns are identified early and consistently. Countries with structured, multi-age screening schedules, such as Australia, the United States, and South Korea, demonstrate significantly higher rates of early identification and earlier access to services [5]. Screening at multiple ages is especially important because many developmental concerns emerge later than infancy. Malaysia should implement universal screening at ages two, three-and-a-half, and five across health clinics and preschools. Screening tools must be culturally adapted and linked to clear referral pathways for intervention [9,14].

A successful universal developmental screening system in Malaysia requires standardized, culturally adapted tools, screening conducted across multiple community-based settings, clear referral pathways, and trained early childhood educators serving as front-line screeners. Standardized tools are essential because Malaysia's population is linguistically and culturally diverse; children from different ethnic, linguistic, and socioeconomic backgrounds may demonstrate developmental skills in ways that are not fully captured by Western-designed instruments. Adapting tools to reflect Malaysia's local reality can enhance the validity of the screening. Importantly, the process will be inclusive, and sensitive to local norms. Furthermore, developmental screening must extend beyond Klinik Kesihatan to preschools and childcare centres, community halls, and state-led early childhood hubs because many families, especially in rural or low-income communities, may not attend routine health check-ups. Placing screening in the spaces where young children are already present increases reach, normalizes early identification, and reduces the logistical and financial barriers families often face when accessing health facilities.

Equally crucial are clear and standardized referral pathways that guide families from screening to assessment and coordinated early intervention. International evidence shows that fragmented pathways lead to delays, repeated referrals, and families "getting lost" in the system, significantly reducing the effectiveness of early detection [1,7]. Without structured guidance, families often face confusion, long waiting times, or inconsistent referrals, undermining the purpose and value of screening [14]. Establishing a national pathway that links healthcare, education, and community providers ensures that once a developmental concern is identified, families receive timely assessment, enrolment in EI programmes, and ongoing monitoring.

To operationalize this effectively, preschool educators must be trained as front-line screeners, as they interact daily with children and are well-positioned to identify red flags in communication, behavior, and learning [15,16]. Evidence demonstrates that with appropriate training, educators and non-specialists can reliably administer screening tools and support parent engagement, reducing dependence on scarce specialists [5,11]. This tiered approach expands Malaysia's screening capacity while maintaining quality.

These measures justify the need for a national, multi-tiered, community-based screening system. Embedding screening into children's natural environments, supporting families with clear referral pathways, and leveraging trained educators ensures that early detection is not determined by geography, income, or parental awareness. Instead, developmental monitoring becomes a universal experience, positioning Malaysia to build an equitable and efficient early intervention ecosystem aligned with global best practices.

3.2. Hybrid Service Delivery Using Community Hubs and Telehealth

Hybrid models integrate physical access points with technology-enabled outreach. This approach reduces service inequities between urban and rural areas while improving continuity of care. Evidence shows that telehealth-supported EI—especially parent coaching—yields outcomes comparable to in-person sessions for developmental delays and behavioral interventions [4].

A hybrid service delivery model for early intervention in Malaysia can be conceptualized as a community-anchored service network that integrates district-based centers with technology-enabled outreach. At the center of this network are District Early Intervention Centres, which serve as primary access points for comprehensive developmental assessments, multidisciplinary case management, and group-based programmes. These centres would house teams of therapists, psychologists, and early childhood specialists who conduct detailed evaluations, design individualized support plans, and deliver targeted onsite intervention when required. Extending the reach of these centres are telehealth-supported services, which use video consultations, messaging platforms, and digital learning tools to coach parents, conduct follow-up monitoring, and deliver remote caregiver training—allowing families to access support without frequent travel. Complementing these efforts are mobile outreach teams that periodically visit rural, remote, and indigenous communities to conduct onsite screening, offer basic intervention, and connect families to the nearest district centre for further assessment. Together, these three components form a cohesive and flexible network that brings services closer to children while ensuring access to specialist expertise [4,11].

The impact of this hybrid, community-anchored model is significant. It reduces travel burdens and financial strain for families living far from urban centres, thereby improving access and minimizing dropout. It also maximizes the reach of scarce specialists by allowing professionals at district centres to support multiple communities through remote supervision and consultation [5]. Moreover, the blended model ensures continuity of care during disruptions such as monsoon seasons, public health emergencies, or facility closures, because telehealth and mobile services maintain consistent engagement with families. By integrating digital monitoring, caregiver coaching, and periodic community outreach, the system also promotes ongoing developmental surveillance, rather than isolated, one-time assessments. This approach aligns strongly with global best practices and Malaysia's digital health priorities, offering a scalable, equitable, and context-responsive framework for strengthening early intervention nationwide [14].

3.3. Tiered Workforce Development Through Micro-Credential Pathways

Malaysia faces a chronic shortage of therapists, psychologists, and specialists trained in child development. A long-term solution requires tiered competencies, where roles are distributed across screeners, parent coaches, educators, and specialists. This model is widely used in the United States Early Intervention Part C system and Australian community-based EI programmes, enabling scalability without compromising quality.

A sustainable early intervention system in Malaysia requires a tiered workforce structure supported by competency-based micro-credentials. At the foundational level, community screeners, including preschool teachers, nurses, and early childhood educators, should be trained to conduct basic developmental screening and identify early red flags. Building on this, parent coaches can support families through evidence-based guidance embedded in daily routines, an approach shown internationally to improve developmental outcomes when specialists are scarce. At the highest tier, specialist therapists such as speech-language therapists, occupational therapists, physiotherapists, and psychologists provide targeted intervention for children with more complex needs. This structure is strengthened through micro-credential pathways, delivered by universities, teacher education institutes, and state training academies, ensuring that each tier achieves clearly defined competencies. Collaboration with national bodies such as NECIC further ensures quality assurance, standardized benchmarks, and a coherent national pipeline capable of meeting Malaysia's growing early intervention demands.

3.4. A National Early Intervention Registry with Equity Dashboards

A national early intervention registry is essential for strengthening Malaysia's capacity to monitor service gaps, plan resources, and ensure accountability across health, education, and social welfare sectors. International evidence shows that developmental outcomes improve when systems systematically track screening results, referrals, service utilization, and children's longitudinal progress, as these data enable earlier identification of inequities and more responsive policy decisions [1,7]. A centralized registry that assigns each child a unique identifier and records wait times, intervention intensity, and developmental outcomes would allow Malaysia to generate state and district dashboards that highlight disparities based on geography, socioeconomic status, or disability type. Such a system would support coordinated planning and help ensure that resources flow to underserved regions. Moreover, data-driven monitoring aligns with global recommendations urging governments to use integrated information systems to guide early childhood policies and track progress toward SDG 4.2, which emphasizes equitable access to quality early development services [14,15].

3.5. Sustainable Co-Financing and State-Federal Partnership Models

A sustainable financing approach is crucial for ensuring that early intervention services in Malaysia are equitable, consistent, and resilient across political cycles. International experiences show that when early childhood development systems rely on fragmented or temporary funding, services become uneven, families face financial hardship, and long-term developmental gains are compromised [1,7]. To overcome these challenges, Malaysia would benefit from a co-financing model in which both state and federal governments share responsibility for the operational and developmental costs of early intervention. State-funded initiatives—such as Selangor's dedicated allocation for early childhood disability services—demonstrate the potential of subnational leadership in expanding access and piloting innovative models, but these efforts require federal reinforcement to ensure national coherence and equitable distribution of services [15]. A matching grant mechanism, where federal funds supplement state investments, can incentivize states to prioritize early intervention while ensuring long-term financial stability.

Beyond public-sector contributions, diversified financing mechanisms can strengthen sustainability. Integrating early intervention subsidies into national social protection schemes can reduce economic barriers for low-income families, while public–private partnerships and corporate social responsibility initiatives can support specific needs such as screening equipment, digital infrastructure, or outreach programmes. Evidence from global early childhood systems indicates that blended financing—combining government, community, and private-sector contributions—enhances system resilience, supports quality improvement, and ensures continuity of care even during economic

fluctuations [6,14]. By adopting a coordinated co-financing strategy grounded in shared accountability, Malaysia can build a more stable, equitable, and future-ready early intervention ecosystem.

3.6. Hybrid Service Delivery

A hub-and-spoke model combining district early intervention centers with telehealth coaching can extend reach and reduce inequities. Telehealth has demonstrated effectiveness for parent-mediated interventions when supported by structured protocols [4,11].

4. DISCUSSION AND CALL TO ACTION

Malaysia's early intervention system stands at a critical juncture. State-led programmes demonstrate promising innovation, yet national coherence, equity, and sustainability remain challenges. Implementing universal screening, hybrid service models, and a tiered workforce would significantly strengthen early childhood systems, while data and financing reforms would ensure long-term impact. A coordinated national strategy must be co-developed with ministries, state governments, universities, NGOs, and disability advocacy organisations. Such collaboration is essential not only to overcome operational challenges but also to address societal stigma and ensure culturally responsive practices.

To support policymakers, researchers, and practitioners in operationalising these reforms, Table 1 presents five actionable proposals, each aligned with global recommendations and national priorities. These actions are designed to be realistic, measurable, and adaptable across diverse Malaysian contexts.

Table 1. Forward-Looking Proposal and Actionable Items

Proposal	Actionable Items	Evidence-Based Justification
Implement Universal Developmental Screening (UDS)	• Introduce mandatory screening at ages 2, 3.5, and 5 in health clinics and preschools. • Adopt culturally adapted screening tools validated for Malaysia's multilingual population. • Train educators and EC practitioners as front-line screeners. • Establish structured referral pathways from screening to assessment and intervention.	Universal screening reduces late diagnosis and improves developmental outcomes (Daelmans et al., 2015; WHO, 2020a). Culturally adapted tools ensure accuracy across diverse groups (UNICEF Malaysia, 2014). Educator-led screening expands access and reduces gaps (Bravo et al., 2022).
Strengthen Hybrid Service Delivery (Community Centres + Telehealth + Mobile Units)	• Establish District Early Intervention Centres as service anchors. • Expand telehealth support for parent coaching and follow-up monitoring. • Deploy mobile outreach teams to rural and indigenous communities. • Integrate telehealth standards for data privacy, quality, and continuity.	Hybrid models increase reach, cut travel burdens, and support families in remote areas (Bagner et al., 2023; Shin et al., 2025). Telehealth has proven effective for behavioural and developmental interventions.
Develop a Tiered Workforce Using Micro-Credential Pathways	• Create competency-based micro-credentials for screeners, parent coaches, and specialists. • Partner with universities, TVET institutions, and training academies to deliver short courses. • Align competencies with national bodies such as NECIC. • Deploy trained screeners and parent coaches in preschools and community hubs.	Evidence shows that paraprofessionals and parent coaches effectively support EI when properly trained (Sandbank et al., 2023). Micro-credentials ensure consistent quality and clear progression pathways.
Establish a National Early Intervention Registry with Equity Dashboards	• Create a centralized digital registry linking screening, referral, and intervention data. • Assign unique child identifiers for longitudinal tracking. • Produce state/district dashboards highlighting disparities in access and outcomes. • Enable data sharing across MOH, MOE, and JKM.	Integrated data systems improve planning and reduce inequities (Administration for Children & Families, 2023). Dashboards support transparency, accountability, and evidence-based resource allocation (WHO, 2020b).

Table 1. Forward-Looking Proposal and Actionable Items (continued)

Proposal	Actionable Items	Evidence-Based Justification
Implement Sustainable Co-Financing Models	• Introduce federal-state matching grants for EI infrastructure and services. • Incorporate EI subsidies into national social protection schemes. • Encourage public–private partnerships (CSR) for equipment, digital tools, and outreach. • Use outcome-linked funding to incentivize quality improvement.	Blended financing strengthens system resilience and ensures equitable access (CDC, n.d.; WHO, 2020a). Matching grants motivate states to invest in EI, while diversified funding reduces reliance on any single source.

Of the five proposals above, the national early intervention registry with equity dashboard is likely to face the strongest administrative and political resistance because it requires cross-ministry data-sharing (i.e., MOH, MOE, and JKM). This specific proposal also introduces privacy and governance risks and increases transparency around state-level inequities. This paper recommends a coalition-led, phase-by-phase implementation beginning with a pilot by leveraging ANIS readiness.

While the proposed hybrid early intervention model leverages telehealth to improve access and sustainability of care, it may not be supported by a comprehensive digital readiness. In rural and remote communities in Sabah and Sarawak, equitable service quality can be ensured through a blended approach that combines low-bandwidth telehealth (e.g., asynchronous video or audio guidance and messaging-based coaching) with community-based delivery. The local government agency needs to train community health workers, preschool educators, or local facilitators to serve as intermediaries who support the families in these areas. In this way, telehealth functions as an enabling and follow-up mechanism rather than a substitute for in-person support. This approach is important to ensure comparable developmental outcomes despite differences in infrastructure.

To evaluate the effectiveness of the reformed early intervention ecosystem, the proposed equity dashboards should prioritise a small set of indicators that records access, quality, and developmental impact across all implementation sites in Malaysia. First, the timeliness of access should be recorded, measured by the median time from initial screening to the start of the intervention, is a core equity indicator and should be expected to show improvement within 12-18 months. Second, service coverage and continuity, measured by the proportion of identified children receiving interventions, should show improvement within 18-24 months. Third, caregiver engagement and satisfaction provides an early signal of service usability and trust which should be monitored within the first 12 months. Forth, child developmental progress represents the month substantive outcome which should be recorded over 2-5 years timeline. These indicators enable the dashboards to function not only as monitoring tools, but as mechanisms for continuous learning and targeted resource allocation.

5. CONCLUSION

Malaysia has the opportunity to build a transformative early intervention ecosystem through integrated policies, innovative service delivery, and strategic investment. By embracing universal screening, hybrid models, tiered workforce pathways, comprehensive data systems, and sustainable financing, the country can significantly improve developmental outcomes for children with disabilities. These forward-looking strategies align international best practices with Malaysia's unique cultural and structural context, while advancing national commitments to inclusive, equitable, and high-quality early childhood development.

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