WEB APPENDIX

Web Appendix Table A: Saving Brains Portfolio Evaluation Data Sources

Data Source	Description	Timing of data collection	Organisation receiving data	Data type
Service delivery forms	Document completed by grantees used to collect projected, interim and/or final and quantitative information on workforce and intervention delivery	Yearly	Grand Challenges Canada	Quantitative & Qualitative
Results- based Management and Accountability Framework (RMAF)	Framework completed by grantee which facilitates the collection of data and comparison of results around core metrics	Six monthly	Grand Challenges Canada	Quantitative & Qualitative
RMAF+	Framework completed by grantee developed from the original RMAF and Theory of Change containing more detailed metrics on impact, process and context of innovations	Six monthly	Grand Challenges Canada	Quantitative & Qualitative
Progress reports	Narrative reports completed by grantees detailing project progression, challenges, lessons learned, results, dissemination and next steps	Six monthly	Grand Challenges Canada	Qualitative
Research proposals	Proposal of innovation design completed by potential grantees	Point of application for grant	Grand Challenges Canada	Qualitative
Saving Brains community meeting transcripts	Transcripts from discussions between grantees and platform members at two Saving Brains community meetings	21st-22nd Jun 2016 25th-26th Oct 2016	LSHTM	Qualitative
Key informant interviews	Key informants identified through professional networks and approached for interview on relevant themes	Jun-Oct 2016	WHO / LSHTM	Qualitative
Grantee interviews	Grantees identified by LSHTM and platform members for thematic discussion	Jul-Sept 2016	LSHTM	Qualitative
Focus group discussions	Grantees selected and invited to online focus group discussion on workforce choices, supervision and training, and monitoring quality and coverage	Jun-Oct 2016	LSHTM	Qualitative

Web Appendix Table B: Key informants contributing to qualitative components of portfolio evaluation

	Organisation Type/Name	Position	Question theme
ECD POLICY AND PROGRAMMING			
1	Saving Brains	Executive	ECD research, policy and programming; contemporary challenges and future directions.
2.	Multilateral UN organisation	Policy and programming.	ECD research, policy and programming; contemporary challenges and future directions.
3.	Multilateral UN organisation	Policy and programming.	ECD research, policy and programming; contemporary challenges and future directions.
4.	Private international ECD foundation	Policy maker.	ECD research, policy and programming; contemporary challenges and future directions.
5.	International Financial Institution.	Policy maker.	ECD research, policy and programming; contemporary challenges and future directions.
6.	Multilateral non-government organisation.	Policy & programming.	ECD programming, iNGO perspective on what is needed to progress the field
7.	International Child Health Research Institution	Policy, programming & research.	ECD in global child health – challenges and future directions.
8.	Non-government disability-ECD organisation - national level.	Policy and programming.	Inclusion in ECD programming – iNGO perspective
9.	Ministry of Health, sub-Saharan African country.	Policy and Programming	ECD in global child health, health perspectives.
OTHER EXPERTS IN FIELD			
	General		
10.	Public health academic institution, UK	Senior Researcher	Research priorities in ECD
11.	Public health academic institution, USA.	Senior Researcher.	Challenges, priorities and approaches in future ECD research.
	Specific technical		
12.	Public health academic institution, USA.	Senior Researcher.	Impact metrics
13.	Public health academic institution, USA.	Researcher.	Impact metrics
14.	Public health academic institution, UK	Senior Researcher.	Impact metrics
15.	Multilateral UN organisation.	Senior Researcher.	Impact metrics
16.	Saving Brains Grant Recipient Research Institution.	Senior Researcher.	Implementation process metrics, human resourcing.
17.	Saving Brains Grant Recipient Research Institution.	Senior Researcher.	Implementation process metrics, cost-effectiveness
18.	Saving Brains Grant Recipient Research Institution.	Senior Researcher.	Integration.
19.	Academic Centre, USA.	Senior Researcher.	Implementation process knowledge gaps, priority questions and research methodology.
	Saving Brains Platform		
Members of the Saving Brains Platform team who were consulted about various aspects of the evaluation, their experiences working within the Saving Brains portfolio and in regard to specific technical, programming and research related themes.			
	Grantees		
Twenty-one of thirty-nine (54%) of research teams were specifically interviewed regarding their innovation and various aspects of their experiences within the Saving Brains portfolio.			

Web Appendix Table C: Saving Brains Seed Grants (Funding Rounds 2, 3, and 4)

Round: phase of funding	Project name	Institution (Country)	Implementation countries	Trial type (Control group – Y/N/NA)	Participants	Site	Intervention typology
2: Seed	New malaria policies to protect early brain development	University Health network (Canada)	Malawi	Multi-centre superiority RCT (Y)	416	HF	Prevent
2: Seed	Learning clubs for women's health and infant development	RTCCD (Vietnam)	Vietnam	Pre and post comparison	164	HV, CG	Promote and Prevent
2: Seed	Fathers Involvement: Saving Brains in Vietnam	Hanoi School of Public Health (Vietnam)	Vietnam	Quasi-experimental	368	HV, CG, HF	Promote
2: Seed	An Integrated Toolkit to Save Newborns' Brains	The Hospital for Sick Children (Canada)	Kenya	Cluster RCT (Y)	1819	HV	Promote and Prevent
2: Seed	A Toolkit to Minimize Pain in Infants	The Hospital for Sick Children (Canada)	Ghana	Intervention study (N)	923	HF	Prevent
2: Seed	Proof of Concept of a Culturally Appropriate Iron Fortified Biscuit to Reduce Maternal and Perinatal Anemia.	St Johns Research Institute (India)	India	Double-blind, RCT (Y)	159	HV, HF	Prevent
2: Seed	Improving Early Childhood Development in Zambia	Zambia Center for Applied Health Research and Development (Zambia)	Zambia	Community-based Cluster RCT (Y)	258	HV, CG, HF	Promote
2: Seed	Effect of community-based depression management and psychosocial stimulation intervention on maternal mental health and child development- A randomized controlled trial	ICDDR,B (Bangladesh)	Bangladesh	Cluster RCT (Y)	150	HV	Promote and Protect
2: Seed	Community-based Family Coaching for Children with Developmental Risks in Lima, Peru	Socios en Salud Sucursal (Peru)	Peru	RCT (Y)	41	HV, CG	Promote, Prevent and Protect
2: Seed	CommCare ECD: Mobile Technology and Community Health Workers for Early Childhood Development	Ugunja Community Resource Center (Kenya)	Kenya	RCT (Y)	1250	HV, CG, DC	Promote
3: Seed	Proving concept on a sustainable and scalable model of Early Childhood Care & Education for urban slums in Kenya	Kidogo Early Years (Kenya)	Kenya	NA	155	DC	Promote and Protect
3: Seed	Novel SMS-Based Technology for Early Brain Development Support and Monitoring in Brazil	TNH Digital Health (Brazil)	Brazil	RCT (Y)	119	HF	Promote
3: Seed	Community-based infant massage: from saving bones to saving brains	Community Empowerment Lab (India)	India	RCT (Y)	860	HV, CG	Promote
3: Seed	Family-inclusive Intervention to Improve Early Brain Development	University of Ibadan (Nigeria)	Nigeria	RCT (Y)	480	HF	Promote
3: Seed	Fostering the development of premmies through stronger child-family well-being: innovating early child development assessment and intervention in high risk infants and their families in Brazil	UFMG (Brazil)	Brazil	RCT (Y)	300	CG, HF	Promote and Prevent
3: Seed	Home visiting programs to improve early childhood development and maternal mental health - evidence from the Western Region Project	Universidade de Sao Paulo (Brazil)	Brazil	Three-arm RCT (Y)	143	HV	Promote and Protect

Round: phase of funding	Project name	Institution (Country)	Implementation countries	Trial type (Control group – Y/N/NA)	Participants	Site	Intervention typology
3: Seed	Integrating a Parenting Intervention with Routine Care to Improve Early Developmental Outcomes in Children with Sickle Cell Disease and Decrease Maternal Stress	The University of the West Indies (Jamaica)	Jamaica	RCT (Y)	254	HF	Promote and Prevent
3: Seed	A sustainable public-private partnership for delivering integrated child development care in Pakistan	Association for Social Development (Pakistan)	Pakistan	Cluster RCT (Y)	1241	HF	Promote and Prevent
3: Seed	A Community based implementation of a low cost evidence-based toolkit for improving brain development in newborns who suffered neonatal insults	University of Manitoba (Canada)	Pakistan	Cluster RCT (Y)	540	HV	Promote and Prevent
3: Seed	A community-based Conscious Discipline Program to Reduce Corporal Punishment in the Caribbean	WINDREF (Grenada)	Grenada	Cluster RCT (Y)	843	HV	Promote and Protect
3: Seed	A Mile for the Brain: Use of Social Entrepreneurship in Providing Last Mile Access of Enhanced Complementary Foods for Weaning Children in Rural Areas	GIIA (Kenya)	Kenya	NA	600	HV, CG	Prevent
3: Seed	Maternal and Newborn Health and Early Childhood Development in Rural Low Literacy Settings of Ethiopia	CCFC (Canada)	Ethiopia	RCT (Y)	2500	HV	Promote and Protect
3: Seed	Preventing Neural Tube Defects in Nicaragua through Rice Fortification	INCAP (Nicaragua)	Nicaragua	NA	154	Other	Prevent
3: Seed	Community Youth Leaders Championing School Readiness, Transitions and Continuity	Aga Khan University (Pakistan)	Pakistan	NA	215	DC	Promote
4: Seed	Scaling early childhood development at Anganwadi Centers in India	DMIMS (India)	India	Cluster RCT (Y)	900	CG	Promote and Protect
4: Seed	Crowdfunding and Social Networks as a Novel Mechanism to Sustainably Promote Physical Growth and Positive Psychosocial and Neurodevelopmental Outcomes in Severely Stunted Guatemalan Children	Wuqu'Kawoq (Guatemala)	Guatemala	RCT (Y)	320	HV	Promote, Prevent and Protect
4: Seed	Matuzo Bora Ya Watoto Wachanga: Good Care for Babies	Heartland Alliance International (DRC)	DRC	Intervention study	121	HV, HF	Promote and Protect
4: Seed	The effects over early brain development of a nurse home visitation program for pregnant youth and their families living in a poor urban area in Sao Paulo, Brazil	University of Sao Paulo (Brazil)	Brazil	RCT (Y)	72	HV, HC, Other	Promote and Protect
4: Seed	Strengthening Health Systems for High Risk Newborn Care: An Integrated Hospital-Community GIS System for Sustainable Delivery of Quality Care during Early Child Brain Development in Rural Uganda	Makerere University (Uganda)	Uganda	Quasi-experimental (Y)	2432	HV, HF	Prevent
4: Seed	First Steps (Intera za Mbere): Promoting healthy early childhood development by extending holistic parenting education nation-wide through radio-facilitated peer	Save the Children (Rwanda)	Rwanda	RCT (Y)	1620	HV, CG	Promote

Round: phase of funding	Project name	Institution (Country)	Implementation countries	Trial type (Control group – Y/N/NA)	Participants	Site	Intervention typology
	learning groups, and by increasing access to emergent literacy materials.						
4: Seed	A community-based model of delivery of Kangaroo Mother Care for improving child survival and brain development in Low Birth Weight newborns	Society for Applied Studies (India)	India	NA	450	HV	Promote and Prevent
4: Seed	Steps Brain Booster Program	Steps Baby Lounge (Brazil)	Brazil	RCT (Y)	110	DC	Promote
4: Seed	Integrating early child development in home-based environmental interventions in rural Peru	Universidad Peruana Cayetano Heredia (Peru), Swiss Tropical & Public Health Institute (Switzerland)	Peru	RCT (Y)	162	HV, CG	Promote and Prevent
4: Seed	Chamas for Change: Building Adult Capabilities to Safeguard Children's Developmental Potential through Mother-Child Clubs in Kenya	Moi University (Kenya), AMPATH (Canada), University of Toronto (Canada)	Kenya	Prospective cohort with matched control (Y)	613	CG	Promote

Web Appendix Textbox A: Methods of Saving Brains portfolio impact and process evaluation

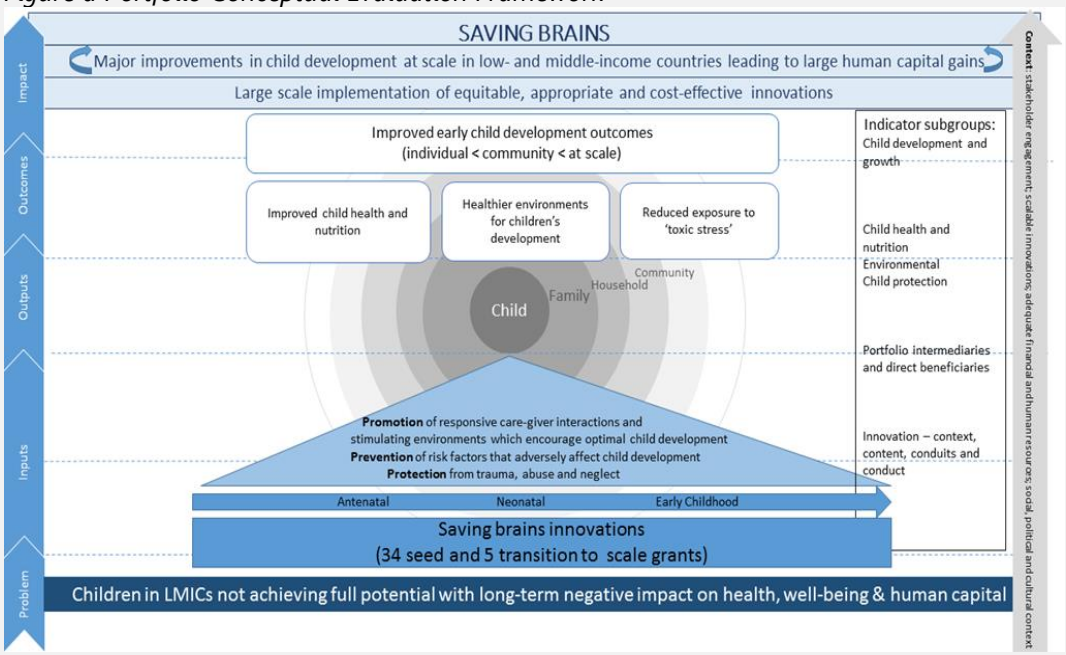
Textbox A: Methods of Saving Brains portfolio impact and process evaluation

We undertook an impact and process evaluation of child development projects funded by Saving Brains, Grand Challenges Canada (GCC) between 2011 and 2016.

Conceptual Evaluation framework (Figure a)
To guide evaluation design, a Conceptual Evaluation Framework was developed. (Figure a) This used key structural elements of the Saving Brains Portfolio monitoring and evaluation framework specifically an existing Portfolio level Theory of Change (ToC) and related indicators which had been developed by a diverse team of ECD experts coordinated by the Saving Brains partnership (Web Appendix Figure A) The evaluation framework provided a structure for considering processes by which outputs, outcomes and impact were expected to be achieved across Saving Brains Seed and TTS projects.

For evaluation purposes, projects were also described by type, according to the focus of their intervention (i.e. 'promote', 'protect' and/or 'prevent'). These terms, defined below, map to domains within the WHO NCF as illustrated in Figure 1.

Figure a Portfolio Conceptual Evaluation Framework



Since the majority of projects in the portfolio focused on responsive stimulation or early learning, this comprised the main focus on the evaluation.

Data sources and collection
A wide range of data sources were used for both quantitative and qualitative components of the evaluation (Web appendix Table A).

Quantitative
Project teams collected quantitative impact and process data using pre-specified data collection tools provided by Grand Challenges Canada, in particular;

- Service Delivery Forms (SDFs): Microsoft Word documents with tables comprising data on contact point, cadre types, remuneration, supervision and training of workers, logistics of intervention delivery, including duration and frequency of contact time with participants, and who received the intervention and white space boxes for information on fidelity and quality of interventions.
- Results-based Management and Accountability Framework (RMAF): Microsoft Excel document comprising data on numbers of recipients and beneficiaries (intermediary and final) of interventions; child growth and development outcomes; intermediary outcomes (including parental and home environment outcomes); resource availability, funds leveraged and costing; service provider recruitment, training and supervision; community reach, coverage and demand for intervention; and social, biological and policy context.

Textbox A (continued): Methods of Saving Brains portfolio impact and process evaluation

Qualitative

Thematic areas of enquiry

Broad thematic areas of enquiry, relevant to ECD policy and programming at scale, were established based on literature review, stakeholder consultation and analysis of written portfolio documents (Web Appendix Table A).

Pragmatic literature review included a searche through Medline and Embase, using the following Medical Subject Heading terms; 'Child development' OR 'Developmental Disabilities' AND 'Developing Countries'. Additional articles were retrieved through reference lists of identified articles and Saving Brains materials. Grey literature was searched through websites of major multilateral organisations engaged in ECD programming including the World Health Organisation, UNICEF, Save the Children Fund, the World Bank, World Vision International, other related organisations, and Google.

The following thematic areas of enquiry were established for further exploration; partnerships, content and adaptation of intervention, universal/targeted approaches, delivery strategies, contact points, workforce (recruitment, training, supervision and incentivisation), integration with other sectors, use of technology, processes for monitoring impact, quality, coverage and cost, challenges and strategies for resolution.

Interviews, meetings and focus group discussions

Key informants were purposively selected with snowballing from professional networks including national and international programmers, policy makers, ECD researchers, Saving Brains project leads and members of the Saving Brains Platform (Web appendix Table B). All project leads were invited to focus group discussions (FGD) and/or interview via email. FGD participants were exclusively project leads. Interview participants were key informants and project leads. FGD and in-depth interviews with key informants were conducted both online via Skype and face-to-face at Saving Brains meetings.

Interviewers and FGD facilitators were members of the LSHTM evaluation team and members of the wider Saving Brains partnership. Interviews and FGDs were directed by 'topic guides' developed according to emergent thematic areas of enquiry. Audio recordings of FGDs, interviews and meetings were transcribed by a third party.

Written documents

Research proposals and progress reports included qualitative data on project design, context of intervention delivery and in-depth information on challenges, lessons learned and next steps for innovation teams (Web Appendix Table A). These written documents were submitted by innovation leads to GCC in Microsoft Word or PDF format.

Data analysis

Quantitative

Quantitative data were entered manually or automatically imported into Microsoft Excel for data cleaning and management. Data analysis, using Stata v14, included basic statistical methods including mode, mean, median, ranges and interquartile ranges of frequencies, percentages and ratios for a range of variables across the three areas of interest (contact point, cadre and content).

Quantitative

Project documents and meeting, interview and FGD transcripts were imported into NVivo11 and data were coded independently by two members of the LSHTM evaluation team (KM and MKL). An inductive approach was used to create an evolving coding framework, and data was abstracted relevant to initial and emergent themes, until saturation was reached. Thematic content analysis was undertaken on review of NVivo11 node contents and coding summary reports.

Web Appendix Figure A: Saving Brains Portfolio level Theory of Change