



FY21 1st Prenatal / Early Childhood Grant Call

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CREATING GROWTH, ENHANCING LIVES



Evolution in the landscape moving into RIE2025



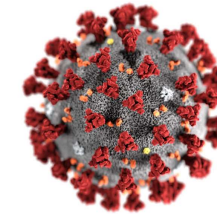
Healthcare Transformation & Key Global Trends

Precision Health
Population Health
Preventive Healthcare



Changing Economic Value creation models

Digital Health Opportunities
Growing competition & opportunities



COVID-19

Accelerating demand for telehealth
Increasing importance of data integration & analytics
Increased investment in diagnostics, drug devt and mfg

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Why Human Potential?



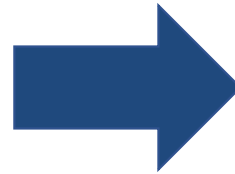
Declining birth rates



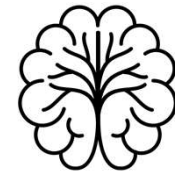
Declining workforce



Ageing population



Enhancing Physical Health



Improving Mental Health



Improving Learning Outcomes



Active Ageing

CHALLENGES

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**OPPORTUNITIES
TO ADVANCE HP**

Vision and Primary Outcome

Human Potential as an integral part of ***Health & Biomedical Sciences research*** and its applications in RIE2025:

VISION

To advance Human Potential in **health, biomedical sciences and science of learning** research and its applications at **critical junctures** of an individual's life course

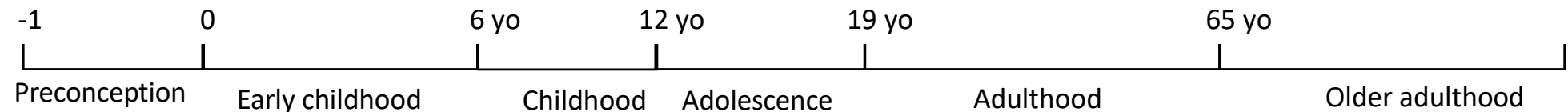
PRIMARY OUTCOME

An individual is provided the support and opportunity to **develop optimally at critical junctures of his/her life course**. This will enable the individual to **achieve optimal health, well-being and/or learning capacity** to contribute his/her best to Singapore.

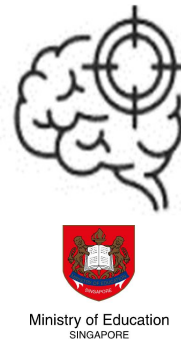
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Human Potential Strategic Approach



Leverage HBMS and Social Science research to optimize **Early Life** outcomes



Leverage **Science of Learning (SoL)** and related HBMS research to improve learning outcomes and upskilling of workers

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Leverage multi-disciplinary research to prevent/delay physical and cognitive decline and bring about **healthy and meaningful longevity**

Desired Outcomes from Early Life Research

The Early Life grant call is an open grant call covering the **Prenatal and Early Childhood period** from **pre-conception, pregnancy to early childhood (-1 to 6 yrs of age)**.

Applicants should address one or more of the following priorities in their proposals, with preference to research that result directly or indirectly to improving maternal and child well-being, as well as child health and learning:

Improving child health, learning and well-being

- i. Healthy children through the reduction of childhood obesity and other conditions such as myopia
- ii. Reduction in children requiring learning support
- iii. Emotionally stable, resilient children with high self-regulation

Improving maternal health and well-being

- i. Healthy mothers during and after pregnancy; healthy babies through improved maternal physical health
- ii. Healthy babies through improved family mental wellness; emotionally stable and resilient mothers

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Desired Outcomes for Child Health, Learning & Well-being



Possible area of focus

Obesity, Feeding Behaviour, Myopia

Long-term Outcome

Healthy children by reducing obesity rates & other conditions such as myopia



Socio-emotional development programmes in preschools

Emotionally stable, resilient children with high self-regulation



School Readiness, Whole Child Assessment, Sleep

Children are more ready for school and have lower likelihood of requiring learning support

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Research areas in Child Health, Learning & Wellbeing

Child nutrition, obesity and other conditions

1. Development of novel and effective interventions to reduce childhood obesity, associated metabolic disorders and other physical conditions like myopia.
2. Development of potential interventions to improve development of cognitive function in children.

Cognitive & intellectual development

1. Development of novel tool kits or methods to determine early child cognitive and executive functions and interventions to improve learning outcomes and reduce need for learning support in Primary school.
2. Investigation of factors influencing cognitive development such as early exposure to electronic gadgets and sleep disruption.

Socio-emotional development and mental wellness

1. Identification of modifiable early life factors (e.g. pre-school programmes, interactions with parents/caregivers) that affect socio-emotional development and resilience in pre-school children.
2. Development of novel tools or methods for assessments and interventions to improve socio-emotional development.

Examples:



Interventions targeting parental feeding practices and eating behavior



Impact of sleep on Singaporean children and effects on cognitive function and mental health



Pre-school programmes to enhance executive function and emotional regulation

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Desired Outcomes for Maternal Health & Well-being



Metabolic Health

Possible area of focus

Gestational and Type 2 Diabetes (GDM/T2D)

Long-term Outcome

Healthy mothers during and after pregnancy



Mental Wellness

Depression & Anxiety

Emotionally stable and resilient mothers

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Research areas in Maternal Health & Well-being

Metabolic Health

1. Identification of early factors with life course impact on maternal metabolic health.
2. Development of novel and effective interventions for improving maternal metabolic health outcomes during and after pregnancy (e.g. reduce rate of mother diagnosed with gestational diabetes mellitus from progressing to pre-diabetes/type 2 diabetes).

Mental Wellness

1. Identification of early factors with negative or positive life course impact on maternal mental health.
2. Development of novel diagnostics for early detection of women/mothers at risk of anxiety and depression.
3. Development of novel and effective interventions for improving maternal mental health outcomes during pregnancy (e.g. reduce anxiety/depression).
4. Development of tool kits or methods for improving mother/child emotional interaction and assess its influence on child development.

Examples:



Design personalized web-based therapies for Singaporean mothers using AI-informed content



Interventions targeting parenting of children over the first 18 months of life to nurture language and cognitive development

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Grant Call Categories

1st Early Life Grant Call seeks to support targeted research in child and maternal health, preferably **with a clear pathway to translation.**

2nd & 3rd Early Life Grant Call

1 Encouraging a Broad Base of Research

Funding Quantum

Up to **\$1 million*** for Investigator Research Grants

2 Mount programmatic and collaborative research to achieve near- to mid-term impact

Funding Quantum

Up to **\$5 million** for Collaborative POC / Pilot studies



3 **PILOT TRIALS**

based on research evidence to conduct small scale studies with ops agencies, with intent to change practices, guidelines & policies

Funding Quantum

Up to **\$10 million** for pilot trials/intervention studies

**Preference will be to award grants at quantum of ~\$500k so that more researchers can benefit.*

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Scope of Grant Call

Encouraged to

- Leverage existing **HBMS, social science and SoL research capabilities** in the proposals to strengthen utility and impact
- **Partner** relevant public/private sectors to facilitate downstream translation or deployment (if applicable)

Funding basic and applied research with clear vision towards and potential for translation and impact

- ✓ Applications should emphasize potential for translational impact to address important gaps in national policy and practice in health, education and social services.
- ✓ Grant call will prioritize applications in areas that provide evidence for innovation in policy/practice/service in early childhood development and maternal outcomes: E.g.
 - i. Neuroscience-informed and mechanism-defined interventions/platform technologies/tool kits
 - ii. Advanced data analytics and computational modeling to identify 'at-risk' individuals or critical mediational pathways as novel targets for intervention
 - iii. Innovation in technologies (e.g. biosensors, AI-solutions) that provide tool kits to inform assessment of risk/outcome in relevant population
 - iv. Leverage available data as opportunities to validate new approaches
 - v. Innovation in the development of computation strategies for large data set analysis to enhance the value of existing data sets towards priority areas
 - vi. Scalable lab and clinical methods that can be deployed for use in natural environments
 - vii. Low cost mobile wearable devices and home based systems to assess interplay of cognitive development, social and physical interactions
- ✓ Proof-of-concept studies/trials should discuss how they can be scaled up for larger trials/intervention studies.

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Eligibility Criteria

1. Researchers from all Singapore-based institutions of higher learning, public sector agencies, public hospitals
2. Grant proposals should only be submitted by one lead Principal Investigator (PI)
3. The Lead PI must have
 - a minimum of 0.7 FTE primary appointment in a Singapore publicly funded research or tertiary institution and be salaried by the institution
 - has a laboratory or research programme that carries out research in Singapore; and

| For Investigator Research Category (Up to \$1 million) | For Collaborative POC / Pilot studies Category (Up to \$5 million) |
|--|--|
| <ul style="list-style-type: none"> • Young, mid or senior investigators can apply • Young investigators* are strongly encouraged to work with a mentor for research guidance if they have not received external competitive funding exceeding \$500,000 (direct cost only) within the last 5 years to conduct their own research project as the PI | <ul style="list-style-type: none"> • Lead PIs should demonstrate relevant scientific/technical background and have a good track record as an independent PI in leading and coordinating research programmes, as well as achieving productive research outcomes (e.g. award of nationally competitive funding, substantial publication record in the past 3 years) |

*must have completed their PhD or MBBS/MD/BDS within the past 7 years and past 10 years respectively, whichever date is later

4. Collaboration with foreign organisations and experts in the capability of a Co-investigator or a Collaborator is allowed, but no funding will be allocated to the foreign Co-investigator/Collaborator who are operating out of Singapore.

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Evaluation Criteria



Contribution to Grant Objectives

- Relevance, scientific value and amount of contribution of proposed research in addressing the challenge(s) posed.



Potential for Deployment in Singapore (primarily)

- Potential and feasibility for application and translation of research outcomes/solutions with local agencies or organisations (public and/or private sectors), and even beyond Singapore.



Scientific Excellence and Innovation

- Quality and significance of proposed research, including the potential for breakthrough/ innovation to advance knowledge and understanding within its own field or across different fields.



Execution Strength & Technical Competency of Research Team (for programmatic grants)

- Quality and delivery of execution plans.
- Quality and track record of research team, including likely multi-disciplinary research, synergy in delivering research and potential for international leadership.

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Timeline

| Item | Dates | Remarks |
|--|---------------------------------|--|
| LOI submission | By 8 Nov 2021 | Applicants to apply via iGMS only |
| Notification of selected LOIs | 29 Nov 2021 | |
| Full Proposal Submission | 29 Nov. 2021 to 27 Dec. 2021 | |
| External Review and Evaluation by Full Proposal Review Panel | 27 Dec. 2021 to 11 Feb. 2022 | |
| Endorsement by Human Potential Steering Committee | Mid-End Feb. 2022 | |
| Budget finalisation | Mar. 2022 | Applicants will be informed of their in-principle approval and will work with grant team on the required processes |
| Letter of Award and commencement of grant | 1 Apr. 2022 | |

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Key points to note

- Projects should leverage existing HBMS, social science and wider S&T ecosystem where possible.
- Cross-domain and cross-life course projects will be prioritised, as will proposals involving collaborations across disciplines.
- Projects need not result in translational/implementable projects in the short-term, but should articulate a clear and realistic pathway towards implementation.
- Funding will be provided on a **reimbursement basis**, on a regular basis (e.g. half yearly)
- Budget projections should be on a **cash accounting** basis (i.e. FY21 projections should be expensed in FY21).

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Q&A

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