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Inquiry into the Obesity Epidemic in Australia
Committee Secretary
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Dear Senate Committee Members

Submission to Parliament of Australia Senate Committee: Inquiry into the Obesity Epidemic in Australia from the Centre of Research Excellence in the Early Prevention of Obesity in Childhood

We welcome the opportunity to contribute to the Senate Inquiry into the Obesity Epidemic in Australia. More than a quarter of Australian children are overweight or obese: that's more than a million children who are an unhealthy weight. These children have a much greater chance of becoming obese adults, and consequently face increased risks of developing chronic diseases such as Type 2 diabetes, heart disease and cancer.

We appreciate that the Australian Government has recognised the substantial health consequences and economic importance of this issue. Reducing the prevalence and consequences of obesity will require *substantial and sustained* investment and innovative approaches.

Obesity is a complex problem that no single intervention, program or policy alone will solve. A comprehensive set of policy and programs with systematic and sustained co-ordination are needed to support children and families to be healthy and active throughout life. The focus of our submission and our research is early childhood, which is a unique period and opportunity for action, but we believe preventive efforts are needed urgently throughout the life-course.

Who we are

The ***Centre of Research Excellence in the Early Prevention of Obesity in Childhood (CRE-EPOCH***) was formed in early 2016 and is funded by the National Health and Medical Research Council. We are a collaboration of childhood obesity researchers, practitioners and government representatives from universities within Australia and overseas with expertise including

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paediatrics, public health nutrition, epidemiology, physical activity research, health economics, health service delivery, program development and implementation, and government policy. Our institutions include The University of Sydney, Deakin University, Queensland University of Technology, Flinders University, The University of Otago, and the University of Warwick UK.

The goal of our work is to **reduce the prevalence of obesity and obesity-related behaviours in the first five years of life in order to transform the health trajectories of the next generation.** To do this, our work provides the best evidence about interventions to prevent obesity in early childhood at a population level, including the cost effectiveness of these interventions and how they can be effectively up-scaled to reach the populations most at risk. This focus on gathering evidence for prevention and scalability is central to our work. Detailed information about our work can be found at www.earlychildhoodobesity.com

Our submission to the Senate Select Committee is informed by the program of work conducted by our team. We address many of the terms of reference below, focusing especially upon the first few years of life.

A) The prevalence of overweight and obesity among children in Australia and changes in these rates over time

- Data from the National Health Survey in 2014-15 in Australia show that 20% of 2-4yr olds were affected by overweight or obesity, including approximately 8.7% with obesity. By age 5 years combined overweight or obesity affects almost one in four children[1].
- Data published by the Australian Institute of Health and Welfare in 2017 for a recent cohort of Australian children show that obesity affects 8.8% of 2-5 year olds, 7.5% of 6-9 year olds, 6.1% of 10-13 year olds and 7.6% of 14-17 year olds [2] and combined overweight & obesity affect 21% of 2-5 year olds, 22.8% of 6-9 year olds, 30.8% of 10-13 year olds and 29.8% of 14-17 year olds [2]
- Our research from the Schools Physical Activity and Nutrition Survey from NSW shows that obesity prevalence has risen in *children* (aged 4-12) from <2% in 1985 to 7% in 2015.[3] Among *adolescents* the prevalence of obesity has risen from 1% in 1985 to 5.5% in 2015.[3]
- Global data show that in high income countries, including Australia, a plateauing of overweight and obesity among children (2-18 years) has been observed since about 2000 ([4], [5] [6, 7]). However, the prevalence still remains unacceptably high. Of the 34 OECD member countries, obesity prevalence is highest in the USA, with Australia ranking fifth for girls (behind New Zealand, Chile, and Mexico), and eighth for boys (behind Chile, New Zealand, Mexico, Greece, Canada, and Hungary).
- In Australia, obesity prevalence in children is still increasing in those from lower socio-economic groups [8]. Differences between socioeconomic status groups have become larger over the past two decades. This indicates that obesity is strongly determined by socio-economic position such that the most disadvantaged are the most at risk.
- In Aboriginal children, recent data from the Australian Bureau of Statistics show that 22.4% of 2-4 year olds, 27.5% of 5-9 year olds, 38.5% of 10-14 year olds are affected by overweight and obesity[9]. Thus, Aboriginal children and adolescents are more profoundly affected by obesity and overweight than their non-Aboriginal counterparts.

B) The causes of the rise in overweight and obesity in Australia, with a specific focus on young children 0-5 years

- With nearly a quarter of all 2-4 year olds in Australia affected by overweight or obesity [10], understanding early life determinants of obesity in young children is critical.
- The causes of overweight and obesity in young children are complex and multi-factorial. There are two key and interrelated pathways: 1) a *developmental pathway* influencing biological processes and 2) an *environmental pathway* influencing obesity risk behaviours [11].

Developmental pathway to obesity:

- Developmentally, there is strong evidence [12-16] that the first thousand days of life (i.e. from conception to age 2 years) is a critical period influencing the likelihood of obesity in infancy, childhood and later in life.
- Pre-conception and pregnancy risk factors include higher maternal pre-pregnancy BMI, smoking during pregnancy, gestational diabetes, excessive gestational weight gain, and small or large size at birth [12, 15].
- Early life nutrition is another important influence on obesity risk later in life. Breastfeeding provides protection [12, 17] while the early introduction of solids before 4 months [14, 15], and inappropriate formula feeding practices (e.g. incorrect preparation causing over concentration, feeding on a schedule, prolonged bottle use) [15] are risk factors.
- It is hypothesised that these pre-conception, pregnancy and early life nutrition risk factors influence biological processes pre-disposing infants to more rapid weight gain [11]. A recent systematic review of 17 studies showed that infants experiencing rapid weight gain (defined as crossing centiles on a growth chart) between birth and 2 years had nearly 4 times greater odds of overweight/ obesity later in life [16]. Further, the associations between rapid weight gain and later overweight and obesity are reported to be strongest for racial/ ethnic minority and low socioeconomic status children [18] with a strong socioeconomic gradient existing for the majority of the early life predictors of obesity [19].

Environmental pathway to obesity:

- In addition to this biological programming of obesity risk in early life, the food and physical activity environment both at home and in the broader community influence obesity risk in young children.
- The obesity-conducive environment leads to an increased consumption of energy dense nutrient poor food and beverages, substantially increasing the risk of childhood overweight and obesity [20]. For example, a recent systematic review of evidence found a positive association between sugar sweetened beverage consumption and risk of overweight and obesity in children [21].
- Reductions in the amount of time children engage in physical activity for play and active transport is a key obesity risk factor [11]. Environmental factors that decrease outdoor play and active transport in children include traffic safety concerns and absence of footpaths[22]. For young children, time spent in situations that restrict movement such as strollers, and viewing television are associated with later excess weight gain[23].

D) The short and long term economic burden of obesity, particularly related to obesity in children in Australia

Short term burden – direct healthcare costs

- There is overwhelming evidence that in Australia, children with obesity use more health care resources than those who are of healthy weight.
- Research from our group shows that, among preschool-aged children, total healthcare costs (including medicines, primary, hospital and emergency care), of children with obesity are 60% higher than those of healthy weight or with overweight [24].
- In one year, the excess cost to the Australian government of health care for preschool aged children with obesity is estimated to be $17M (2016 AUD)[25].
- Similarly, in a nationally representative sample, but considering out-of-hospital costs only, overweight and obesity at age 4/5 years was responsible for $9.8M (in 2008 prices) excess costs over the next 5 years [26].
- Clifford estimated non-hospital costs for all children under 10 years who were above a healthy weight at $13M (2011 AUD) per year[27].
- There are no published Australian data on excess health care costs among adolescents, but a study in Ireland found greater general practitioner and hospital visits among children 13 years with overweight and obesity.
- For every child with obesity that returns to a healthy weight, there will be potential savings in direct healthcare costs [28].

Short term burden – indirect healthcare costs

- During childhood the indirect costs would refer to those due to lost productivity and absenteeism among parents and school absenteeism of children as a result of greater health service use. There are no estimates of these costs for Australia, but they are likely to be greater than direct costs.

Long term burden – direct healthcare costs

- Longitudinal studies investigating evidence for longer term impact of childhood obesity on healthcare utilisation and costs in adulthood have not been carried out in Australia.
- Lifetime direct costs of childhood obesity have not been determined in Australia. The lifetime medical costs of a child with obesity relative to a normal weight child have been estimated in the USA as $12,660 per child[29] and in Germany at €19,479 per child[30] (undiscounted values).
- Tracking of childhood obesity to adult obesity has been established, as has evidence of higher direct healthcare costs among adults with obesity. For example, in Australia Buchmueller showed that, among adults aged 45 and over, overweight status resulted in 19% higher healthcare costs, and having obesity resulted in 51% higher health care costs compared to those of healthy weight[31].
- It is generally recognised that costs incurred during adulthood are much greater than costs incurred during childhood.

Long term burden – indirect healthcare costs

- A recent study in Ireland [32], which has a similar health system to Australia, found the lifetime cost of childhood overweight and obesity to be €7.2 billion ($A 11.2B). This study included indirect and direct costs of all children (1.2 million) aged 0-17 years living in Ireland in 2015, including costs during adulthood. 80% of the costs were

indirect costs, due to absenteeism, premature mortality and loss of lifetime income. The population of Australian children aged 0-17 years in 2016 was approximately 5 million (four times that of Ireland), and overweight and obesity prevalence rates are similar in the two countries.

E) The effectiveness of existing policies and programs introduced by Australian governments to improve diets and prevent childhood obesity

- No one policy, program or life stage can be solely responsible for improvements in diet, physical activity or the prevention of childhood obesity. An inter-sectoral and whole-of-government approach with a sustained policy agenda is needed, as documented clearly by the World Health organization [11].
- The prevention of obesity in the first five years has become a clear focus internationally, with the Director General of the World Health Organization establishing a Commission on Ending Childhood Obesity which reported to the World Health Assembly in May 2016 [11]. Professor Baur was a member of one of the working parties supporting the Commission.
- The final report from the Commission made six recommendations to address childhood obesity: promote intake of healthy foods; promote physical activity; undertake preconception and pregnancy care prevention of child obesity; optimise early childhood diet and physical activity; support healthy, nutrition and physical activity for school-age children; and provide weight management services for those with obesity. That two of the five recommendations directly target 0-5 years of life highlights the importance of this sensitive life period.

National perspective

There are several national policies and guidelines relating to obesity prevention in the early years and we list the most relevant policies below:

- Eat for Health (Australian Dietary Guidelines) which include the infant feeding guidelines. Our research shows that compliance with these Dietary Guidelines, even in the first years of life, is low (53/100)[33, 34]. Setting-based programs are urgently needed to support the implementation and adoption of the dietary guidelines.
- Australia's Physical Activity and Sedentary Behaviour Guidelines include 24-hour movement guidelines for the early years (Birth to 5 years). As for diet, compliance with these guidelines will depend on the implementation of effective interventions and programs to support guideline adoption.
- The Australian Children's Education and Care Quality Authorities National Quality Framework[35] aims to improve outcomes for children attending early education and care services. The standards are an excellent example of regulation with monitoring and accountability, however they need to be strengthened. Programs that support early care and education service compliance, such as www.feedaustralia.org.au, are commended. Ongoing investment is required to ensure ongoing sustainability and impact.
- We note that the National Breastfeeding Strategy is currently under review under the auspices of the Australian Health Ministers' Advisory Council, providing an opportunity to support early prevention of obesity in this national policy document.
- The National Strategic Framework for Chronic Conditions aims to guide the work of national and state/ territorial governments in the prevention and management of chronic disease. The Framework is focused on the prevention of non-communicable

diseases, for the whole of population. It does not outline strategies to directly reduce the prevalence of childhood obesity through preventative approaches.

State initiatives and programs

There are several state-based programs and initiatives relating to obesity prevention in early years which are providing promising results:

- NSW Healthy Children's Initiative[36]. This initiative comprises a suite of childhood obesity prevention programs delivered in childrens' settings, including Munch & Move, Live Life Well at School, Go4Fun, Finish With The Right Stuff, and YHunger. The Munch and Move program is mostly related to the 0-5 age range and is being implemented in over 3,000 centre-based early childhood services across NSW (91% of all services), 92% of which have met or exceeded the performance targets related to implementing health promotion practices (more information about Munch and Move is given further below)
- The Victorian Healthy Eating Advisory Service[37] offers services such as menu planning guidelines, advice and tools for long day care services and outside school hours care and provide menu assessments as well as online training for care providers.

Scaling up effective early obesity prevention interventions

- In section F below we outline the intervention trials which have sought to prevent obesity in early childhood. Our CRE is now working on scaling up and extending follow up of these effective programs.

Monitoring and evaluation

- In order to understand changes in obesity risk, and to determine whether programs are effective or not, it is important to monitor obesity-related behaviours. This is difficult in early childhood: there are large variations in activity, sleep and diet across very narrow age bands; and existing measurement tools are cost- and time-intensive for users. Consequently, data quality can be poor. Our CRE is currently working on projects to identify how obesity-related behaviours in this age group can be most easily, rapidly and accurately monitored in practice and policy settings.

F) Evidence-based measures and interventions to prevent and reverse childhood obesity, including experiences from overseas jurisdictions.

Australian and New Zealand trials for the early prevention of obesity in childhood

- Our group has conducted four separate trials which are *the very first high-quality randomised controlled trials internationally* focusing on obesity prevention interventions in the first 2 years after birth. Details of all the trials are below.
- The *Healthy Beginnings Trial* was a high quality trial (randomised controlled trial - RCT) of a home visiting intervention to new mothers in a socially disadvantaged region of Sydney, which began in late pregnancy and continued to age 2 years [38] [39]. A further trial, looking at the incorporation of Healthy Beginnings into existing home visiting programs, and also looking at the role of SMS or phone coaching support for new mothers, around infant feeding and healthy growth has commenced in Sydney Local Health District[40].
- The *Infant Feeding Activity and Nutrition Trial (InFANT) Program*, based in Melbourne, was a cluster RCT of anticipatory guidance and discussion provided to universally run

first time parent groups, running from when the child was aged 3 to 18 months (ref). This program is currently being scaled up within Victoria [41].

- *NOURISH*, based in Brisbane and Adelaide, was an RCT of two modules of anticipatory guidance via orchestrated parent groups, occurring when the child was aged 4-7 months and then 13-16 months [42].
- The *Prevention of Obesity in Infancy (POI.nz)* study, based in Otago in New Zealand, was a four arm RCT involving additional parental support (including home visits) around Food, Activity & Breastfeeding, or Sleep, or a combination of both, and provided from late pregnancy to when the child is aged 2 years [43].
- Collectively the researchers of these trials agreed to share data from the four separate trials, to determine if innovative interventions to prevent childhood obesity influence BMI at ages 18-24 months[44]. We have shown that, compared with usual care, **early childhood interventions lead to improvements in body mass index (BMI) at ages 18-24 months**, and result in increased breastfeeding duration and a reduction in TV viewing. This approach, involving the largest trials in the 0-2 age group (total number of families over 2000), remains a world first.
- Common components of these programs include:
  - Anticipatory guidance and support for parents using home visiting or parents' groups
  - Detailed advice related to nutrition, including the promotion and support of breastfeeding and appropriate infant feeding, guidance on when to introduce solids and the *what, when and how* of feeding
  - Advice on parenting that includes recognition of a child's hunger and satiety cues and the development of feeding practices that are protective for obesity (reduction of overfeeding for example)
  - Advice on promoting child sleep and active play (e.g. "tummy time") and limiting screen time.
- We have identified 20 additional studies globally, that have been designed to prevent childhood obesity in the early years (see: https://www.earlychildhoodobesity.com/trial_registry.html)

US-based WIC Program

- In the USA the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC Program) targets low-income pregnant, postpartum, and breastfeeding women, infants, and children up to age 5 who are at nutritional risk. It provides nutritious food, nutrition education, breastfeeding support, and referrals to health care and other support agencies. WIC serves 53 percent of all infants born in the US [45]. The WIC program has been hypothesised to influence the prevalence of obesity in children due to positive effects on maternal weight gain and other modifiable risk factors during pregnancy, reducing the incidence of overweight and obesity in a substantial proportion of low-income women. As a result there has been evidence of the plateauing of obesity prevalence among 2- to 4-year-old children enrolled in WIC at the national, state, and local levels[46, 47].

G) The role of the food industry in contributing to poor diets and childhood obesity in Australia

Food composition of products intended for children under five years and marketing

- Ready to eat foods, specifically created and marketed for children under five years represent a unique set of food products. In Australia, concentrated fruit juices are commonly used by industry (to sweeten products, such as yoghurt or ready to eat foods for young children) alongside claims of 'no added sugar', because of the way 'added sugar' is defined under Schedule 4 of the Australian food standards. This is why Australia needs to improve its reporting of sugars in Nutrition Information Panels and why the use of the term 'free sugars' is so important. A recent Federal Court decision brought against Heinz by the ACCC found they made false claims about their products having nutritional value for children aged 1-3 years [48]. Crucially, the judge took into consideration the World Health Organization recommendations of 5-10% of total energy from 'free sugars'. This distinction between 'free' and 'added' sugars is critical, as 'free sugars' includes "all added sugars plus those present in honey, syrups and fruit juices" [49].
- In the Australian diet, added *trans*-fats are found mostly in baked goods. Within this product category are sweet and savoury biscuits, consumed in high amounts by young children [50]. While all fats contribute the same amount of energy to a diet, industry added *trans*-fats offer no nutritional value at all and are harmful to health [51], much like the sugar content of soft drinks. The reason *trans*-fats are used by the food industry is because they are cheap and convenient, alternative fats could be used to improve the health profile of these foods but this is unlikely to happen without regulatory input [52].

The pairing of poor food composition with on-product marketing

- The Australian Dietary Guidelines recommend that children receive breast milk, and where that is not possible, suitable formula, until 12 months of age[53]. Children do not require formula beyond 12 months of age. There is evidence that 'follow-on' or 'toddler' formula advertising is a proxy to advertise infant formula in Australia, despite the voluntary and industry-led Manufacturers' and Importers' Agreement on Formula (MAIF) [54].
- Children's taste preferences are influenced by packaging [55]. Further, marketing influences requests from children for junk food and the 'usual dietary intake' of children under five years [56]. Current restrictions on marketing to children are voluntary and industry-led. They do not include food packaging. There is substantial evidence that these voluntary codes are insufficient to reduce the impact of advertising to children [57].
- These are just some of the ways that the food industry contributes to poor diets and obesity in Australian children. Below are some international examples of policies in place to combat childhood obesity.

International examples to improve the food supply in combating childhood obesity

- Chile passed a law in 2012 (enacted in 2016) with a three-pronged approach: 'black labels' (octagon shape) on foods considered to be too high in energy, fat, sugar and salt; these foods cannot be advertised to children under 14 years; and, they cannot be sold in or near schools. The advertising bans mean that cartoon characters have been removed from cereal boxes, unhealthy products cannot be sold via broadcast media between 6am and 10pm, and infant formula can no longer be marketed in order to encourage breastfeeding. Chile also has an 18% soda tax.

- The sugar reduction program [58] in England is a voluntary dialogue between Public Health England and the food industry, with a target of 20% less sugar across 10 product areas by 2020. It is aimed at all aspects of the food supply (retailers, manufacturers, restaurants, cafes, takeaways, pubs, entertainment chains and delivery services), ensuring a 'level playing field' for all players. This coincides with engagement to reduce overall energy of a further 8 product areas (20% fewer calories by 2024) and salt reduction.
- In the USA, nutrition labelling for 'added sugar' and '*trans*-fat' is mandated for most packaged food on their updated Nutrition Facts label, from July 2018. Of note is the US Food & Drug Association (FDA) definition of 'added sugars', which is similar to how the WHO defines 'free sugars' [59].
- The United Kingdom, Republic of Ireland, Mexico, France, and other countries have a sugar sweetened beverage tax. Evidence from Mexico has shown a drop in consumption of these drinks, especially among lower income families [60]
- Canada is currently developing regulations to restrict marketing to children. Its final report is currently open to public consultation [61] as part of a broader suite of strategies to address obesity, including the Health Eating Strategy.

Recommendations to the Senate Select Committee

Our key recommendations for the Senate committee are given below and many of these recommendations are common with the Tipping the Scales [62] report.

General strategies

- Establish obesity prevention as a national priority with a national taskforce, sustained funding, regular and ongoing monitoring and evaluation of key measures and regular reporting around targets. This could be achieved by developing a National Obesity Prevention Plan.
- Develop, support, update and monitor comprehensive and consistent diet, physical activity and weight management national guidelines – all of which include strategies for young children
- Given the widening disparities in obesity prevalence with socioeconomic status, consider programs which specifically target vulnerable communities in the early years
- Base policies on the socio-ecological framework. Acknowledge and leverage the multiple levels – family-organisational-community-policy – to transform the settings which young children and their families live, work/learn, eat and play – along with the policy and food system.

Strategies specifically focusing on pregnancy and early childhood:

- Ensure appropriate nutrition guidance and advice are provided for both prospective mothers and fathers before conception and during pregnancy. This includes, monitoring and managing appropriate gestational weight gain.
- Implement measures to support, protect and promote breastfeeding for the first year of life and beyond including linking with the Australian National Breastfeeding Strategy.
- Support new parents by providing consistent advice on nutrition, physical activity, sleep, and screen time implemented using new technologies which can be designed to reach vulnerable populations.

- Ensure that early childhood settings provide healthful food and physical activity environments and consider a national program for early child care (similar to Munch and Move in NSW).
- Ensure that health professionals (doctors, nurses, allied health professionals) involved in the care of young children are well-trained in the assessment of healthy growth and the provision of detailed and consistent advice on nutrition, physical activity, sleep, and screen time. Our work in NSW has shown that young children aged 0-2 years visit a primary health care professional on average once per month [63], making them ideally placed as first point of care in anticipatory guidance for obesity prevention.
- Increase the surveillance of children's measured height and weight to allow monitoring of progress at a state and national level [64].
- Monitor food intake young children by extending the National Nutrition and Physical Activity Survey to birth. Support appropriate monitoring and evaluation – including use of fit-for-purpose tools that will enable harmonisation and comparison between jurisdictions.

We also recommend a complementary range of other strategies aimed at the broader environment in which young children live, play and go to school

- Reduce children's exposure to sugar sweetened beverages in particular using bold measures such as a tax on sugar-sweetened beverages [65]. Placing a health levy on sugary drinks to increase the price by 20% would reduce consumption.
- Legislate to implement time-based restrictions on exposure of children (under 16 years of age) to unhealthy food and drink marketing on free-to-air television up until 9:30pm.
- Monitor marketing to children through new media [66] and monitor health 'halo' promotion of foods intended for children under 5 years
- Ensure mandatory nutrition labelling of restaurant foods [67]
- Set clear reformulation targets for food manufacturers, retailers and caterers with established time periods and regulation to assist compliance if not met. Further, regulate specifically on the food composition of products intended for children under 5 years, as they are a particularly vulnerable group
- Make adjustments to improve the Health Star Rating System, and make these mandatory by July 2019.
- Update Australia's Nutrition Information Panel to include 'free sugar' and industrially-produced '*trans* fat' content – this is especially important for foods intended for children under five years, so parents can make informed decisions about the foods they are buying for their young children.
- Develop and fund a comprehensive national active travel strategy to promote walking, cycling and use of public transport.
- Fund high-impact, sustained public education campaigns to improve attitudes and behaviours around diet, physical activity and sedentary behaviour.

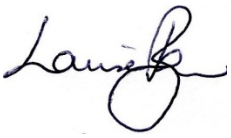
From a policy perspective the Australian government could also strengthen existing policies through the following strategies:

- Strengthen consideration of early obesity prevention in the revision of Eat for Health Infant Feeding guidelines (for example some text about responsive feeding) and this should be done in conjunction with strong implementation plan.
- Extend the National Strategic Framework for Chronic conditions to include early life prevention of obesity
- Invest in implementation strategies to support roll out of effective early obesity prevention at scale.

Concluding remarks
Once again, we thank you for the opportunity to contribute to the Senate Inquiry into the Obesity Epidemic in Australia. We appreciate the Australian Government's efforts to reduce the burden including the substantial health consequences of this issue.

Our Centre of Research Excellence in Early Childhood Obesity Prevention would be happy to share information with the Australian Government as it becomes available in order to expedite the exchange of information and translation of some of our findings into practice. We hope that together we can make a real impact on finding and implementing solutions for the prevention of obesity in the next generation of children.

Yours sincerely,



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