Date: 10-4-2014

Dear Bill Committee on Marriage (Amendment) Bill 2014,

I am writing to express my objection to the Marriage (Amendment) Bill 2014.

Natal gender, being male or female, is not determined by human. However, gender identity is the sense one has of being male or female [Cohen-Kettenis and Gooren 1999]. A significant discrepancy between gender identity and physical characteristics can lead to psychological chronic suffering and is known as gender identity disorder, medically termed as *gender dysphoria*, which is classified in the *International Statistical Classification of Diseases and Related Health Problems* (ICD version 9: 302.85 or ICD version 10: F64) under the category of *mental and behavioural disorders*.

Although I am not a legislative professional, I have very much concerned about the potential risks and uncertainty of amending the current Marriage Legislation, setting an example, for subjects who are medically classified under a mental disease category. The proposed amendment also gives me an impression that it will open a door to allow community health burdens from a public health perspective. My explanations are written in my following paragraphs.

Reflection of gender identity disorder range from living as a member of the opposite sex to partial or maximal physical adaptation through hormonal and surgical treatment. Among most of the transgender subjects (66%), the disorder has an early onset, typically in childhood; while for the remainder, it develops much later in life [Cohen-Kettenis and Pfafflin 2010] and is usually dominated by male with a common male:female ratio of 3:1 according to original sex [van Kesteren et al 1996]. The male dominance is also noted before puberty but gender identity disorder in children often resolves, keeping the adolescents ratio closer to 1:1 [Cohen-Kettenis et al 2008; Wallien and Cohen-Kettenis 2008]. The subsequent increase in the male:female ratio is explained by the higher frequency of men with late-onset gender identity disorder [van Kesteren et al 1996]. The evidence amounts to the fact that gender identity disorder can be reversed when a proper care is given. It also clearly indicates that the 3:1 gender imbalance in older adult seems to be related to socio-psychological rather than biological reason.

According to a recent review paper published in 2011 in a top medical journal, *The New England Journal of Medicine*, the cause of gender identity disorder is still unknown [Gooren 2011]. Gender identity disorder may be a sexual differentiation disorder affecting the brain [Gooren 2006; Meyer-Bahlburg 2010] but its onset cannot be explained by variations in chromosomal patterns or identifiable hormonal abnormalities [Gooren 2006]. At present, there are still too little transgender individuals who are willing to participate in scientific studies to demonstrate any evidence due to socio-psychological factors [Gooren 2011].

There are two types of medical treatment for gender identity disorder: (1) hormonal therapy and (2) surgery. Hormonal therapy for male-to-female transgender is prescribed to induce breast formation and a more female distribution of fat and to reduce male-pattern hair growth [Giltay and Gooren 2000] by administration of, for example, estrogens, progestational agent, cyproterone acetate, flutamide, nilutamide, bicalutamide, ethinyl estradiol, or progestins combined with estrogens [Dittrich et al 2005; Gooren et al 2008]. The dosages required for sex reassignment are usually higher than normally detectable level in the patient body and some of these agents has been associated with significantly increased risks of venous thrombosis [Toorians et al 2003], death from cardiovascular diseases [Asscheman et al 2011], breast cancer [Anderson et al 2004], and harmful metabolic effects including increases in visceral fat, triglyceride levels, insulin resistance and blood pressure [Elbers et al 2003; Elders et al 1999].

After sex-reassignment surgery, hormonal therapy must be continued to avoid symptoms and signs of hormone deficiency, such as vasomotor symptoms and osteoporosis [Hembree et al 2009; Gooren et al 2008]. However, long-term administration of cross-sex hormones can lead to increased risk of hormone-dependent cancers as demonstrated in case reports of prolactinomas, breast cancers, prostate carcinomas, ovarian carcinoma, vaginal cancer, lung cancers, colon cancer and brain cancer [Mueller and Gooren 2008]. These cancer risks may become more apparent as the subjects age and the duration of hormone exposure increases.

Surgical treatment alone without hormone therapy cannot reassign the gender successfully. Although surgical treatment improves the overall quality of life for most transgender persons, 1-2% of those who have undergone surgical sex reassignment regret it [Lawrence 2003]. When regrets occur, they may reflect difficulties in making the transition to a different lifestyle because of appearance or limited social skills. These problems appear to be more common in patients with late-onset transsexuality, who have lived in their natal sex for a long-time.

The most critical concern for legislation for this group of patient who suffers from gender identity disorder is the uncertainty of the effectiveness of the treatment since none have conclusively demonstrated that medical interventions can resolve gender dysphoria [Cohen-Kettenis and Gooren 1999; Smith et al 2005; Murad et al 2010]. Current practices are only based on expert opinion without support of large-scale population studies [Hembree et al 2009]. Unresolved questions are whether there is an age at which cross-sex hormonal treatment should be discontinued [Gooren et al 2008] and whether hormone replacement should be avoided in older subjects.

Obviously, amendment of marriage legislation for transgender individuals without substantial evidence from large-scale long-term studies on the long-term risk of diseases especially for cardiovascular disease and cancer is virtually opening the door for individuals to risk their lives in a direction against the public health principle.

Given the uncertainty in science for health and the ambiguity of the mental status of transgender subjects, I strongly disagree with the notion of the *Marriage (Amendment) Bill 2014*.

Yours sincerely,

Hak-Kan Lai

Hak-Kan Lai
Research Assistant Professor
School of Public Health, Faculty of Medicine,
The University of Hong Kong. Tel: [redacted]
"We love because He first loved us." (1John 4:19)