



SUPPLY-SIDE BARRIERS TO SCALING-UP NUTRITION INTERVENTIONS IN TANZANIA



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Introduction

Early childhood care and experiences, especially in the first 1,000 days of life,¹ have a profound impact on early childhood development (ECD)² and have long-term effects on learning, health, nutrition, and ultimately income. Yet, millions of young children are not reaching their full potential because of a complex interplay of inadequate nutrition and health, lack of early stimulation and learning, and exposure to stress that adversely affects their development.³ In Tanzania, despite substantial gains made in child survival and some improvement in the nutritional status over the last decade, serious challenges to ECD remain. These challenges include high levels of stunting, which affects 34 percent of children under five, and micronutrient deficiencies among children and women of reproductive age.

In response to these unacceptably high levels of undernutrition, the Government of Tanzania (GoT) developed the Tanzania National Multisectoral Nutrition Action Plan (NMNAP, July 2016 – June 2020),⁴ which prioritizes scaling up high-impact nutrition-specific interventions.⁵ These interventions focus on maternal, infant, young child, and adolescent nutrition (MIYCAN), particularly through preventive and promotive activities at the community level, integrated management of acute malnutrition (IMAM) among children under five, and prevention of anemia among women. Access to and utilization of these high-impact nutrition interventions are constrained by both supply- and demand-side barriers.

This brief report summarizes critical supply-side barriers to scaling up prioritized nutrition-specific interventions. This report focuses on supply-side barriers to nutrition through the health sector (primarily at the local government authority (LGA) and the health facility level), as other reports have already examined supply-side barriers to ECD, the key ECD/nutrition programs, and their service delivery modalities (including community-based services).

The report draws primarily upon the 2017 Nutrition Bottleneck Analysis, which was conducted by the Government of Tanzania (GoT) to systematically assess the primary supply-side drivers to effective coverage and implementation of four key nutrition interventions: i) counseling on appropriate infant and young child feeding (IYCF); ii) identification and management of acute malnutrition; iii) vitamin A supplementation (VAS); and iv) iron and folic acid (IFA) supplementation of pregnant women. The assessment was based on the Tanahashi model,⁶ which classifies key constraints in the delivery of interventions, and examined five key bottlenecks: availability of essential commodities, availability of

¹ The first 1,000 days refers to the period from conception to two years of age.

² According to Denboba et al. (2015), ECD refers to the cognitive, linguistic, socio-emotional, and physical development of the child from prenatal stage up to age eight.

³ IEY for Growth and Productivity Presentation.

⁴ United Republic of Tanzania. 2016. National Multi-Sectoral Nutrition Action Plan (NMNAP) for the period July 2016 – June 2021.

⁵ Nutrition-specific interventions address the immediate causes of undernutrition, like inadequate dietary intake and disease management, and some of the underlying causes like feeding, care practices, and access to food. They are usually implemented by the ministry responsible for health.

⁶ Adapted from Tanahashi T. *Bulletin of the World Health Organization*, 1978, 56 (2) [http://whqlibdoc.who.int/bulletin/1978/Vol56-No2/bulletin_1978_56\(2\)_295-303.pdf](http://whqlibdoc.who.int/bulletin/1978/Vol56-No2/bulletin_1978_56(2)_295-303.pdf)

skilled human resources, physical accessibility of services, service utilization, and quality. Data (primarily routine health data and program reports) were collected by district and regional nutrition officers from 182 out of 185 (98 percent) of the LGAs, and surveyed and analyzed by a team of experts from the Tanzania Food and Nutrition Centre (TFNC), ministries responsible for health (Mainland and Zanzibar), select regions/districts, and select development partners.

This report also summarizes the findings of a field visit that was conducted in the Mainland in January 2018, with participation from the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC), the President’s Office Regional Administration and Local Government (PORALG), and TFNC. The field visit reviewed the experiences of the selected LGAs and health facilities with respect to the specific supply-side drivers, as well as experiences with supervision and support, availability of necessary equipment, commodities, and guidelines in health facilities, training, and delivery of services.

In addition, this report draws upon the Tanzania Stakeholder and Nutrition Action Mapping (FY2015–16), the Joint Multisectoral Nutrition Reviews (JMNRs), and the NMNAP.

Summary of Key Nutrition Supply-Side Issues

The supply side bottlenecks and coverage/quality indicators identified through the GoT’s bottleneck analysis for IYCF, VAS, IMAM, and IFA for Mainland and Zanzibar are summarized in tables 1 and 2 respectively. Where relevant, observations from the field visit have been included to provide additional details.

Critical barriers specific to key nutrition interventions include:

- **Supply-side barriers in the delivery of IYCF interventions are widespread in Mainland Tanzania.** The bottleneck analysis generally found poor availability of: IYCF education and counseling materials; staff trained to deliver IYCF services at health facilities; and community-based IYCF counseling for pregnant women and children 0-23 months.⁷ Half of the regions (17 out of 26) have key IYCF tools available in less than 50 percent of facilities, and nearly half of the regions (15 out of 26) have staff trained on IYCF in less than 50 percent of health facilities. During the field visit, health workers reported that they prioritize curative interventions over preventive/promotive interventions, and do not typically provide one-on-one counseling. To mitigate this, some health workers report that they deliver preventative interventions through group sessions at the facility level, or delegate the task to community health workers/volunteers (CHWs/CHVs).
- **Community-level delivery of IYCF counseling is critical to ensure that households receive multiple contact points on IYCF promotion.**⁸ However, the bottleneck analysis showed a shortage of CHWs that actively promote IYCF (19 out of 26 regions had less than 50 percent of villages covered by an active CHW providing IYCF counseling). As described above, the Tanzania JMNR (2017) noted that MIYCAN is one of the areas that receives the most nutrition spending in LGAs (29 percent of LGA-

⁷ Availability was better in six regions with partner-supported programs focused on scaling up IYCF through the promotion of MIYCAN,

⁸Sanghvi et al (2016). Achieving behaviour change at scale: Alive & Thrive’s infant and young child feeding programme in Bangladesh. MCN, May 2016.

level spending, against a NMNAP target of 33 percent). However, the current spending on IYCF tools and health worker/CHW training is not adequate to achieve the level of coverage targeted under the NMNAP. In contrast to Mainland, Zanzibar has a relatively higher coverage of IYCF supplies, trained health workers, and CHWs providing IYCF counseling, due in part to an ongoing nutrition program supported by UNICEF and Save the Children.

- **All regions have a very poor quality of IFA supplementation (e.g., adherence to the national protocol of 90+ tablets during pregnancy).** The following key issues were identified:
 - Commodity bottlenecks were common, with around 45 percent of facilities reporting IFA stock-outs lasting more than a month in the previous quarter. This was due to a national shortage of IFA at the Medical Stores Department (MSD) in 2017. In the previous year, only 11 percent of facilities reported IFA stock-outs lasting more than a month for the same quarter. As noted during the field visits, IFA is not on the tracer medicines list, which contributed to late recognition of the IFA shortage in 2017.
 - The bottleneck analysis found that no health workers had been trained on IFA supplementation in the last five years in Zanzibar, and only 14 percent were trained in the Mainland. However, follow-up investigations clarified that IFA supplementation is not covered in a stand-alone training, but instead is part of pre-service training on antenatal care protocols. Therefore, any health provider who received pre-service training within the previous five years should have been counted as trained in IFA supplementation. IFA supplementation may also be part the maternal nutrition portion of the MIYCAN training for health workers. This may not have been clear to data collectors, and may have contributed to an underestimation of health workers trained on IFA supplementation. However, the field visits found a very poor understanding of national protocols on IFA supplementation, indicating that training is an important bottleneck. Going forward, it may be helpful to refine the question in the bottleneck analysis to specify that it refers to training for the delivery of IFA according to national protocols, and to provide counseling. It may also be useful to differentiate between types of trainings received by health workers on IFA supplementation in the previous five years (e.g., pre-service training, in-service integrated nutrition training, or other in-service training).
 - Accessibility is also an important bottleneck, as only 39 percent of villages have a health facility that provides antenatal care. This is particularly important for IFA supplementation since the national protocol requires four or more antenatal care (ANC) visits to ensure sufficient supplementation (as well as quality ANC).
 - The field visits also noted that there is no information, education, and communication (IEC) materials available for IFA supplementation at health facilities.
- **Low availability of facilities offering IMAM services.** Low availability is most significant in the Mainland, with only 21 percent of health facilities offering outpatient treatment for severe acute malnutrition (SAM); geographical barriers further limit access to this service. The availability of trained health workers is also limited; only 13 percent of health workers were trained to provide SAM treatment in the last five years. This report did not assess whether the villages offering IMAM services have historically higher rates of SAM (e.g., whether the distribution of IMAM services is well

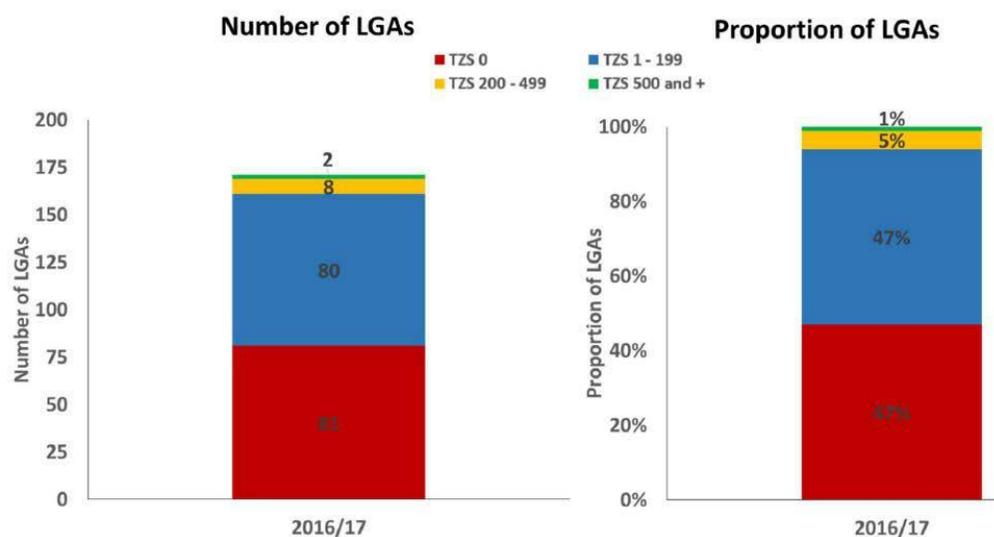
targeted). Going forward, it may also be useful to assess whether each district has at least one health facility with staff trained on IMAM and sufficient supplies, to create a more attainable minimum standard of IMAM coverage.

- VAS is primarily delivered through Child Health Day campaigns, which are functioning well (as seen by the high coverage).** The GoT is concerned about the sustainability of delivering VAS through campaigns and plans to transition VAS through routine health services. However, this transition carries the risk of decreased coverage if LGAs are not adequately prepared. Some of the critical issues will include (i) establishing a supply chain for routine VAS (e.g., ensuring availability of Vitamin A supplements through MSD, ensuring health facilities correctly project and order sufficient commodities, and ensuring that facility-level supplies are distributed appropriately within LGAs); (ii) ensuring protocols and checklists for health facilities are available and health workers are appropriately trained to reach all children aged six to 59 months with VAS every six months (including mitigating the risk of children receiving more than one dose/six months); and (iii) conducting appropriate communication/follow-up with LGAs, health centres, and dispensaries about the transition.

Broader supply-side issues that affected all or most of the nutrition interventions include:

- Low domestic spending on nutrition at the LGA level.** Only two out of 171 LGAs met the directive from PO-RALG (detailed in the NMNAP) to spend at least 500 TZS per child. The 2017 JMNR found that most LGAs spent less than 100 TZS per child (see figure 1), with spending at the LGA-level mainly on micronutrients (38 percent) and MIYCAN (29 percent). As this assessment was meant to evaluate domestic spending on nutrition at the LGA level, contributions like supplies, in-kind donations, and nutrition-related activities from development partners, national ministries/departments/agencies and NGOs were not included in the assessment.

Figure 1 Number and proportion of LGAs spending at least Tsh 500 per child



Source: 2017 Tanzania JMNR.

- **Poor availability of health workers trained to deliver the key nutrition interventions.** The bottleneck analysis revealed that during the last five years only 14 percent of Mainland health workers were trained to provide IFA supplementation, and only 23 percent of Mainland health workers were trained to provide VAS services (according to national protocols). About one-third of health workers were trained on IYCF counseling and 13 percent were trained on the treatment of SAM. Zanzibar also has a significant shortage of health workers with a full range of nutrition skills, with none trained on the IFA national protocol and counseling and less than two-thirds trained on IYCF. The field visit also demonstrated that there was significant variation in the type of training provided to health workers (e.g., varying in prioritized content, length of training, and trainer expertise) and varying levels of integration of nutrition services into routine health services (e.g., platforms such as ANC, postnatal care, or child health services). This review did not assess the quality of training or the differences in the capacity of trained health workers or CHWs.
- **Limited accessibility of health services.** All the selected nutrition services require multiple contacts between the woman/child and the health worker. The limited availability of services can be a critical bottleneck. For example, only 21 percent of villages offered IMAM services for children requiring treatment for SAM. This could be mitigated by ensuring each district has at least one health facility with staff trained on IMAM and sufficient supplies, and ensuring that trained CHWs contribute to screening (e.g., mid-upper arm circumference [MUAC] measurement) and referral. VAS, IFA supplementation, and IYCF services are preventive/promotive, and therefore families may not prioritize repeated visits to health facilities to access the services (as was highlighted in the field visit). Currently, bottlenecks are mitigated in a variety of ways. VAS outreach campaigns successfully supplement facility delivery of VAS. Likewise, CHWs, in areas where available, are useful in providing counseling on successful infant and young child feeding practices. There is currently no approach to mitigate the IFA supplementation bottleneck because only 40 percent of villages in the Mainland have a facility offering ANC, and 49 percent of women attend less than four ANC visits (according to the 2015–16 DHS). Going forward, one option is community-based distribution of IFA (e.g., by trained CHWs), which has been shown to increase coverage and adherence to the recommended 90+ tablets.⁹
- **Little integration of key nutrition services into routine supervision and support.** The field visit found that when the Regional Health Management Teams and Council Health Management Teams (CHMTs) are not trained on nutrition, it is difficult to monitor/support nutrition services. In addition, the integrated supervision tools are too long and cannot be completed during one visit. As a result, supervision is conducted *ad hoc* and nutrition activities may not be prioritized. While CHMTs are supposed to conduct quarterly supportive supervision visits, the CHMTs report that visits to health facilities happen twice per year (primarily due to transportation limitations). Routine supervision/support of CHWs is equally challenging and often nutrition services are not prioritized due to competing needs and lack of supervisor training. Community-level supervision is very infrequent and varies by the distance of the community. For many more remote communities, visits from the health facility occur at most one to two times per year and are typically linked to specific activities instead of broad supervision.

⁹ Kavle JA and Landry M. *Publ Health Nutr.* 2018 (2): 346–354. Community-based distribution of iron-folic acid supplementation in low and middle-income countries: a review of evidence and program implications.

- **Poor availability and use of routine nutrition data to monitor progress.** The availability and utilization of routine nutrition services data is essential to guide supportive supervision and monitoring. During the field visits it was observed that registers for IFA, VAS, SAM, and IYCF are often incomplete, potentially because register completion was not prioritized during supervision. Standard facility registers are organized chronologically, which presents a challenge for staff to find and track a patient’s service history. In a resource-constrained environment this challenge leads to incomplete and haphazard data collection. An additional challenge is that community-level services may not be captured in the facility register, and therefore coverage may be underestimated. Key issues associated with the nutrition service utilization data sources, examined in the bottleneck analysis, include:
 - **Pregnant women receiving 90+ IFA supplements:** The bottleneck analysis was based on DHS data from 2015–16. HMIS tracks the number of women who received an adequate quantity of IFA supplements at each ANC visit, but does not monitor how many pregnant women received the recommended 90+ tablets of IFA throughout pregnancy. Due to this limitation, the country can only assess progress on this indicator through national surveys.
 - **Children six to 59 months receiving VAS:** The bottleneck analysis was based on reports of VAS coverage from the community health and nutrition month, an event organized by the Ministry of Health every six months to deliver a package of health and nutrition services (VAS, deworming, and screening for acute malnutrition) for children six to 59 months. The coverage of interventions delivered through the community health and nutrition months is monitored by the MOH through activity reports from LGAs. Field visits also found that the data on VAS is inconsistently recorded in registers at facility level (and therefore captured in DHIS 2). If and when the country moves towards delivery of VAS through routine supplementation instead of community health and nutrition months, it will be important to review whether the approach to monitoring VAS through HMIS (children 12–59 months receiving at least one dose of VAS in the last year) is still adequate, as this indicator will not allow the GoT to monitor adherence to the national protocol of VAS every six months.
 - **Counseling on IYCF:** The bottleneck analysis was based on reports from NGOs, nutrition officers, and ministries because a) community-level data on optimal feeding counseling (where most of this counseling occurs) by CHWs to mothers of children six to 23 months is not routinely available through DHIS 2; and b) facility-level data on maternal IYCF counseling during ANC is collected in health facility registers and monitored in HMIS, but is frequently incomplete.
 - **IMAM:** The bottleneck analysis data on expected cases of SAM and cure rates was based on information from district health reports, NGOs working on IMAM in the district, or from the district medical officer because these indicators are not monitored through DHIS 2.
- **Poor supply chain management of key nutrition commodities (IFA supplementation and SAM treatment [Ready to Use Therapeutic Food (RUTF)]).** Both Mainland and Zanzibar reported high IFA stock-outs (around 40 percent of facilities), while RUTF stock-outs were high in Mainland (60 percent of facilities). The bottleneck analysis highlighted health system weaknesses in accurate planning, forecasting, and distributing commodities to meet national service provision protocols. It

was noted that poor training (e.g., inadequate awareness of distribution protocols, and therefore potentially poor projections), insufficient funding, and low prioritization also contribute to commodity bottlenecks. During the field visits, the team observed that even when national supplies of IFA were available, stock-outs varied between facilities within an LGA. This was reportedly due to rationing of IFA stock at the district level (e.g., a facility would request two canisters to meet the projected needs but receive only one) and low prioritization of IFA supplementation by facilities who might not follow up on this commodity, and by CHMTs who did not include this commodity as an important area for supervision.

Table 1 Bottleneck Analysis in Mainland, FY 2016–17

	Supply-side bottlenecks (Mainland)	Utilization and Quality (Mainland)
Infant and Young Child Feeding	<p>Commodities: 34% of health facilities had IEC material on IYCF in the reporting period (FY 2016–17).</p> <p>Skilled human resources: 32% of relevant health workers were trained on IYCF counseling in the past 5 years.</p> <p>Accessibility: 38% of villages had at least one active CHW offering IYCF counseling to pregnant women and children 0–23 months in the reporting period (FY 2016–17).</p>	<p>Utilization: 17% mothers of children 0–23 months received counseling on IYCF from a CHW in the reporting period (FY 2016–17).</p> <p>Quality (1): 18% of children 6–23 months of age received the minimum adequate diet (MAD). *</p> <p>Quality (2): 46% of infants 0–5 months of age were exclusively breastfed. *</p>
Iron and Folate Supplementation	<p>Commodities: 64% of health facilities had no stock-outs of IFA lasting more than one month in the previous three months (Q4 FY16–17).</p> <p>Skilled human resources: 14% of relevant health workers were trained on the national protocol for IFA supplementation in the past 5 years.</p> <p>Accessibility: 39% of villages had at least one health facility providing antenatal care for pregnant women in the reporting period (FY 2016–17).</p>	<p>Utilization: 27% of pregnant women received any IFA at an ANC clinic in the previous 3 months (Q4 FY16–17).</p> <p>Quality: 11% of mothers with children aged 0–59 months took IFA for 90+ days during pregnancy. *</p>
Vitamin A Supplementation	<p>Commodities: During the last round of supplementation (i.e., child health and nutrition month), ** 93% of health facilities had no stock-outs of Vitamin A capsules lasting more than a week.</p> <p>Skilled human resources: 23% of relevant health workers were trained in VAS national protocol in the past 5 years.</p> <p>Accessibility: 42% of villages had at least one health facility providing VAS in the reporting period.</p> <p>** VAS is provided during bi-annual child health and nutrition months, which are held every June and December. The highest performance was used for this assessment.</p>	<p>Utilization: 97% of children 6–59 months received VAS in the last 6 months **</p> <p>Quality: In the last 12 months, 87% of children 6–59 months received 2 annual doses of VAS. **</p>
Integrated Management of Acute Malnutrition	<p>Commodities: 40% of health facilities had no stock-outs of ready-to-use therapeutic food (RUTF) lasting more than one month in the reporting period (FY 2016–17).</p> <p>Skilled human resources: 13% of relevant health workers were trained on treatment of SAM during the past 5 years.</p> <p>Accessibility: 21% of health facilities offered outpatient treatment (OPT) of SAM in the reporting period (FY 2016–17).</p>	<p>Utilization: 14% of expected cases of SAM amongst children 0–59 months were admitted for treatment in the IMAM program in the reporting period (FY 2016–17).</p> <p>Quality (1): 12% of children aged 0–59 months with SAM did not default from treatment in the reporting period (FY 2016–17).</p> <p>Quality (2): 10% of children aged 0–59 months with SAM were cured in the reporting period.</p>
<p>*All data were collected from health facility reports, routine data sources (e.g., DHIS 2), and district reports (e.g., training and NGO reports) except those marked with *. These came from DHS 2015, the most recent population-level survey.</p>		

Table 2 Bottleneck Analysis in Zanzibar, FY 2016–17

	Supply-side bottlenecks (Zanzibar)	Utilization and Quality (Zanzibar)
Infant and Young Child Feeding	<p>Commodities: 84% of health facilities had IEC material on IYCF in the reporting period (FY 2016–17).</p> <p>Skilled human resources: 64% of relevant health workers were trained on IYCF counseling in the past 5 years.</p> <p>Accessibility: 77% of villages had at least one active CHW offering IYCF counseling to pregnant women and children 0–23 months in the reporting period (FY 2016–17).</p>	<p>Utilization: 24% of mothers of children 0–23 months received counseling on IYCF from a CHW in the reporting period (FY 2016–17).</p> <p>Quality (1): 9% of children 6–23 months of age received the minimum adequate diet (MAD). *</p> <p>Quality (2): 61% of infants 0–5 months of age were exclusively breastfed. *</p>
Iron and Folate Supplementation	<p>Commodities: 60% of health facilities had no stock-outs of IFA lasting more than one month in the previous three months (Q4 FY 2016–17).</p> <p>Skilled human resources: 0% of relevant health workers were trained on the national protocol for IFA supplementation in the past 5 years.</p> <p>Accessibility: 100% of villages had at least one health facility providing antenatal care for pregnant women in the reporting period.</p>	<p>Utilization: 20% of pregnant women received any IFA at an ANC clinic in the previous 3 months (Q4 FY 2016–17).</p> <p>Quality: 8% of mothers with children aged 0–59 months took IFA for 90+ days during pregnancy. *</p>
Vitamin A Supplementation	<p>Commodities: 100% of health facilities had no stock-outs of Vitamin A capsules lasting more than a week during the last round of supplementation. **</p> <p>Skilled human resources: 32% of relevant health workers were trained in VAS national protocol in the past 5 years.</p> <p>Accessibility: 100% of villages had at least one health facility providing VAS in the reporting period.</p>	<p>Utilization: 86% of children 6–59 months received VAS in the last 6 months. **</p> <p>Quality: 77% of children 6–59 months received 2 annual doses of VAS in the last 12 months. **</p>
** VAS is provided during bi-annual child health and nutrition months, which are held every June and December. The highest performance was used for this assessment.		
Integrated Management of Acute Malnutrition	<p>Commodities: 100% of health facilities had no stock-outs of ready-to-use therapeutic food (RUTF) lasting more than one month in the reporting period (FY 2016–17).</p> <p>Skilled human resources: 24% of relevant health workers were trained on treatment of SAM during the past 5 years.</p> <p>Accessibility: 69% of health facilities offered outpatient treatment (OPT) of SAM in the reporting period (FY 2016–17).</p>	<p>Utilization: 32% of expected cases of SAM amongst children 0–59 months were admitted for treatment in the IMAM program in the reporting period (FY 2016–17).</p> <p>Quality (1): 28% of children aged 0–59 months with SAM did not default from treatment in the reporting period (FY 2016–17).</p> <p>Quality (2): 17% of children aged 0–59 months with SAM were cured in the reporting period (FY 2016–17).</p>
*All data were collected from health facility reports, routine data sources (e.g., DHIS 2), and district reports (e.g., training and NGO reports) except those marked with *. These came from DHS 2015, the most recent population-level survey.		