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Abstract

Background: The Afghanistan Reconstruction Trust Fund, managed by the World Bank through a contracted-out instrument called Sehatmandi, financed health service delivery in Afghanistan, with substantial achievements in infant, child and maternal health. After the collapse of the Afghan Government on 15 August 2021, the health system has been on the brink of collapse.

Aims: We assessed the use of basic health services and estimated excess mortality resulting from the interruption to healthcare funding.

Methods: We conducted a cross-sectional study that compared health services utilization from June to September for 3 consecutive years, 2019, 2020 and 2021, using 11 output indicators reported by the health management and information system. We used the Lives Saved Tool, a linear mathematical model with input data from the Afghanistan Demographic Health Survey 2015, to calculate the additional maternal, neonatal and child mortality at 25%, 50%, 75% and 95% reduction in health coverage.

Results: During August and September 2021, after the announced ban on financing, health service utilization decreased to a range of 7–59%. Family planning, major surgeries and postnatal care showed the greatest decreases. Uptake of child immunization showed one-third decrease. Sehatmandi provides around 75% of primary and secondary health services: pausing funds to this programme will result in additional 2862 maternal deaths, 15 741 neonatal deaths, 30 519 child deaths, and 4057 stillbirths.

Conclusion: Sustaining the current level of health services delivery is crucial to avoid excess, preventable morbidity and mortality in Afghanistan.

Keywords: health services, health system, funding, performance indicators, financial crisis, excess mortality, morbidity, Afghanistan

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Introduction

Since early 2003 the basic package of health services, focusing mainly on improving maternal and child health, has been implemented in Afghanistan (1). In 2005, the Ministry of Public Health introduced the essential package of hospital services to provide referral support to the basic package of health services (2). Due to contextual challenges, including system fragility, an innovative model was established through which nongovernmental organizations (service providers) were contracted by the Ministry of Public Health to provide health services. The ministry took on the role of stewardship and oversaw the service delivery (3).

During the past 2 decades, despite the security-related instabilities, the strength of the health system, mainly the basic package of health services and the essential package of hospital services, supported substantial improvements in infant, child and maternal health. The infant mortality rate fell to 47 per 1000 live births in 2019 from 91 per 1000 live births in 2000 (4). The under-5 mortality rate decreased to 60 per 1000 live births in 2019 from 129 per 1000 live births in 2000 (4). The country experienced a substantial increase in average life expectancy at birth, reaching 63.0 years compared with 55.8 years in early 2000 (5). A recent United Nations report estimates the maternal mortality rate as 638 per 100 000 live births (6), representing a 56% reduction from 1450 maternal deaths per 100 000 live births in 2000 (6). The number of functional health facilities increased from 498 in 2002 to 3135 in 2019 (7). The number of health workers increased to 25 000 (8); in 2001 there were only 467 female birth attendants who had formal midwifery education in the whole country (9).

Sehatmandi is a key health project providing the basic package of health services and the essential package of hospital services through a contracting-out mechanism. It is financed by a pool fund of donors/foreign aid managed by the World Bank; the Afghan government does not have a contribution. Referring to the last published national health account report, government health expenditure as a proportion of total government expenditure is only 5%, and this is used for running provincial and tertiary national hospitals (10). Under Sehatmandi, 11 performance indicators were identified as priorities for reporting progress. These included under-5 child morbidities; growth monitoring; promotion of children under 2 years and infant and young child feeding; institutional deliveries; antenatal care and postnatal care visits; family planning couple years of protection; major surgeries; caesarean section; tuberculosis (TB) cases treated; outpatient department visits; and Penta 3 and tetanus toxoid (TT2) coverage. Baseline, minimum and maximum targets were established and agreed upon for each province and for each nongovernmental organization contract. A proportion of the payment was directly linked to the performance of the nongovernmental organizations in improving agreed target indicators (3,11).

After 4 decades of conflict, the government of Afghanistan collapsed on 15 August 2021. The recent political changes and interrruption of funds to the health sector by the World Bank-led consortium affected the availability and utilization of health services, which had already experienced notable disruptions due to the COVID-19 pandemic. The pausing of World Bank funding to the health sector exposed the health system to a massive risk of losing the gains made over the last 2 decades (12). This paper assessed the potential impact of the recent changes in the utilization of basic health services and their subsequent effect on infant, child and maternal mortality.

Methods

As the government collapsed in mid-August 2021 and World Bank paused its funding at the same time, the period June–September was selected to assess the impact of these changes. We compared the utilization of health services over the 4 months for 3 consecutive years, 2019–2021.

For our analysis and comparison, we used 11 indicators linked with payment to nongovernmental organizations and reported by the health management and information system of the Ministry of Public Health, and which are available on the District Health Information Software 2 (DHIS2) dashboard (13).

To estimate the impact of recent changes in maternal, neonatal and child mortality, the freely available Lives Saved Tool (LiST) (https://list.spectrumweb.org/) was used to calculate the additional maternal, neonatal and child mortality. The LiST is a linear mathematical model that describes fixed relationships between inputs and outputs to estimate the impact of scaling up/scaling down of evidence-based interventions on reproductive, maternal, neonatal and child health in low- and middle-income countries. The primary input parameters are published population-based survey data such as from demographic health surveys or multiple indicators cluster surveys. In this study, the Afghanistan Demographic and Health Survey 2015, the latest available household-level survey, was the source for input parameters (14). The model outputs are case-specific mortality, including neonatal, child (1–59 months) and maternal mortality, and stillbirths. The model covers approximately 70 separate evidence-based interventions that have been demonstrated to reduce stillbirths, neonatal deaths, deaths among children aged 1–59 months and maternal mortality or risk factors. One key characteristic of LiST is that it estimates the impact of scaling up or scaling down coverage of multiple interventions at the same time. Calculation of impact is simple when considering a single intervention as a linear model: the change in coverage multiplied by the efficacy of the intervention is applied at the case-specific level while the efficacy of an intervention is defined in terms of the reduction in a particular cause of death or risk factor. For example, there may be 10 000 deaths due to diarrhoea in children aged 1–59 months and the proposed intervention is 50% effective in reducing diarrhoea mortality. If coverage reaches 50%, mortality due to diarrhoea among children would

be reduced to 10 000 – (10 000 × 0.5 × 0.5) = 7 500. In the same way, excess mortality due to effective intervention is calculated by summing up, and at 50% coverage would be 12 500.

The overall assumption of the model is that mortality rates and the cause of death structure will not change dynamically, and that any differences will be solely in response to changes in intervention coverage. For maternal mortality, stillbirths and neonatal and child (1–59 months) mortality, the cause of death structure is fixed in the base year. Another feature of LiST is a direct linkage to the demographic model, DemProj, which allows users to define populations via inputs, including age-specific fertility by age and sex along with other factors. This integrated model allows LiST users to select a country, base year and end year, and the LiST automatically populates the population projection for that period (15,16).

In this study, excess mortality calculations were accomplished by taking the intervention coverage reported in the Afghanistan Demographic and Health Survey 2015 as a baseline (14) and running the calculation for 25%, 50%, 75% and 95% reductions in reproductive, maternal, newborn, child and adolescent health intervention coverage.

Results

Our findings, based on the DHIS2 reporting, are presented in Table 1 in the form of percentage differences (we assumed the 2019 figures as the reference for comparison). The widespread conflict across the country after June 2021 severely affected the utilization of basic health services.

When comparing the 11 selected output indicators directly linked with nongovernmental organizations payments over 2019–2021, the data showed the following changes for each indicator:

Antenatal care

Comparing antenatal care visits in the same 4-month period over 3 years, the health management and information system data reported a 21% reduction in utilization of antenatal care services in 2021 compared with 2020.

Couple years protection

Comparing couple years of protection, reductions of 56% and 65% were registered between 2019 and 2020 and 2021 respectively.

Caesarean section

The figures for caesarean section remained the same when we compared them between 2019 and 2021. However, a major decline was noticed when a comparison was made for the same months between 2020 and 2021. In contrast, increases of about 37% and 14% were registered for the months June and July 2020 and 2021. Between August and September, a major decline of 46% was noted for the total number of caesarean sections performed.

Child morbidity

For the period June 2019–June 2020, there was a reduction of 13% in visits of sick children to health facilities even though child morbidity figures remained the same for 2019–2021. However, for July–September, a decline of up to 10 percentage points was observed between 2019 and 2021, and for the annual comparison between 2020 and 2021, there was a gradual decrease from June to September.

Whereas in June registration indicated an increase of 24% in the number of sick children visiting health facilities, decreases of 14%, 6% and 26% were reported for July, August and September respectively.

Institutional delivery

The institutional deliveries remained the same for June–August 2021. However, for September 2021, a 29% reduction was reported in comparison with 2020. This reduction coincided with increased conflict and a concurrent disruption to health services.

Major surgeries

A mixed trend was registered for major surgeries for June and August 2021 when these data points were compared with the 2 preceding years. The variation ranged from a decline of 23% to an increase of 14%, but when we compared September 2020 and 2021, the number of major surgeries had reduced by half.

Pentavalent 3 vaccination

Compared with the same period in 2019, the data representing the pentavalent 3 vaccination for June–September 2021 remained the same. However, the difference was more pronounced comparing the data for 2020 and 2021. Whereas an increase of 17% was registered for June, the remaining months registered a decline ranging from 5% to 27%. Even before the collapse of the previous government, there had been a ban on immunization in certain areas of the country which were under the control of antigovernment groups.

Postnatal care

About 5% variation in postnatal care was observed during June–August 2019 compared with 2021. However, a comparison of data for September in 2020 and 2021 indicated a decline of 19% in uptake.

Tuberculosis treatment

A consistent decline was reported in the treatment of TB during the period under study. A sharp drop of one-third was noted when the data for September 2021 was compared with 2020.

Tetanus toxoid 2

The number of doses of TT2 increased by 31% in June 2021 compared with June 2020. However, comparing September 2021 with the corresponding month in 2020, a 30% decline was observed.

Growth monitoring

Growth monitoring of children aged under 2 years and infant and young child feeding counselling for pregnant and lactating women showed an increasing trend from 2020 up to June 2021. However, the number of clients decreased by 18% in September 2021 compared with the corresponding month in 2020.

Excess maternal and child mortality

Around 75% of all health services are provided by the national public health programme, Sehatmandi. To estimate excess mortality due to disruption of services, we used LiST and considered 4 scenarios.

Figure 1 shows the output of LiST reporting of the 4 main indicators: excess maternal deaths, neonatal deaths, child deaths (0–59 months) and stillbirths at 25%, 50%, 75% and 95% reduction in health service utilization. For instance, if child health care services were interrupted by 25%, we would expect 9242 excess deaths among children aged 0–59 months, and 40 875 excess deaths if health care service delivery was interrupted (or health care service utilization decreases) by 95%.

The disruption in service delivery will lead to additional maternal, neonatal and child deaths and stillbirths. As the Sehatmandi programme provides around 75% of health services, pausing funding to this programme will result in an additional 2862 maternal deaths, 15 741 neonatal deaths, 30 519 child deaths and 4057 stillbirths each year (Figure 1).

Discussion

Our data indicate that disruption to health services in 2020 due to COVID-19 and further aggravated in 2021 as a consequence of increased insecurity and the suspension of funding by the World Bank have resulted in a significant decline in the utilization of health services.

Sustaining the current level of health services delivery is crucial to avoiding excessive morbidity and mortality, particularly among vulnerable population groups, including women and children.

The immediate allocation of US$ 60 million for sustaining the basic package of health services and the essential package of hospital services for the period October 2021–January 2022 by the Global Fund to Fight AIDS, Tuberculosis and Malaria and the United Nations ensures the prevention of additional avoidable morbidity and mortality, particularly among women and children (17). However, long-term support is required to finance the provision of the basic package of health services and the essential package of hospital services.

Considering the current political environment, there is a need for the World Bank and other key donors to the health sector to resume financing the basic package of health services and the essential package of hospital services through any available potential mechanism meeting their requirements. The suspension of financial support to Sehatmandi will pose additional risks to the lives of every Afghan, a populace already suffering over the past 4 decades. Discontinuation of Sehatmandi will reduce the provision of health services by 75% and result in the deaths of an additional 8 women, 43 neonates and 84 children every day. As advocated elsewhere (8), a suitable model could be to route the funding through the World Health Organization to ensure transparency and acceptability until appropriate alternative arrangements are in place.

Our study has several limitations. In estimating service utilization we used the reported health management and information system data. The timeliness, completeness and quality of these data may differ for different months of the years we studied. This may impact our findings in that we were unable to account for them. Also, we did not calculate the confidence intervals for the point estimates we reported to show statistical significance. We applied the Demographic and Health Survey 2015 coverage data to populate the LiST instrument (14); this is the latest available published data, which served as reference and baseline, but the coverage of the reported output indicators has changed since 2015. Lastly, the LiST model is a linear static model that estimates the change due to a single intervention at a time. For example, access to food or mental status may also contribute to excess mortality in maternal and child health, however, the model cannot account for these factors. The estimation of excess mortality and morbidity would have been different if the coverage data were updated. The Demographic and Health Survey 2015 has its limitations which passively impacted our findings (14).

Access to health services is a basic human right. Therefore, we must ensure impartial and equal access to health services by all Afghans. In the short-term, the World Bank and other key donors to the health sector must continue their support to prevent excessive avoidable morbidity and mortality. In the long-term, the government needs to allocate more domestic resources to the health sector and facilitate the establishment of a prepayment mechanism for using health care. At this point, in the absence of recognition of the current system, public health funding needs to be ensured through an alternative mechanism. The United Nations can play a key role and channel funding to nongovernmental health services providers.

Sustaining the current level of health services delivery is crucial to avoiding excessive morbidity and mortality, particularly among vulnerable groups of the population, including women and children.

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Competing interests: None declared.

Nécessité de maintenir le financement du système de santé pour prévenir la morbidité et la mortalité excessives en Afghanistan

Résumé

Contexte : Le Fonds d'affectation spéciale pour la reconstruction de l'Afghanistan, géré par la Banque mondiale au moyen d'un programme sous-traité appelé Sehatmandi, a financé la prestation de services de santé en Afghanistan, ce qui a permis d'obtenir des résultats substantiels en matière de santé du nourrisson, de l'enfant et de la mère. Après la chute du Gouvernement afghan le 15 août 2021, le système de santé était sur le point de s'effondrer.

Objectifs : Nous avons évalué le recours aux services de santé de base et estimé la surmortalité résultant de l'interruption du financement des soins de santé.

Méthodes : Nous avons mené une étude transversale qui a permis de comparer l'utilisation des services de santé entre juin et septembre pendant trois années consécutives, de 2019 à

2021, à l'aide de 11 indicateurs de résultats rapportés par le système de gestion et d'information sanitaires. Nous avons utilisé l'outil des vies sauvées, un modèle mathématique linéaire basé sur les données fournies par l'enquête démographique et sanitaire d'Afghanistan menée en 2015, afin de calculer la mortalité supplémentaire de la mère, de l'enfant et du nourrisson pour une réduction de 25 %, 50 %, 75 % et 95 % de la couverture sanitaire.

Résultats : En août et septembre 2021, après l'annonce de l'interdiction des financements, l'utilisation des services de santé a chuté pour atteindre une fourchette de 7 à 59 %. La planification familiale, les interventions chirurgicales majeures et les soins postnatals ont enregistré les baisses les plus importantes. L'utilisation des services de vaccination des enfants a diminué d'un tiers. Le programme Sehatmandi fournit près de 75 % des services de santé primaires et secondaires : l'interruption des fonds alloués à ce programme entraînera 2862 décès maternels, 15 741 décès néonatals, 30 519 décès d'enfants et 4057 mortinaissances supplémentaires.

Conclusion : Il est essentiel de maintenir le niveau actuel de prestation des services de santé afin d'éviter une morbidité et une mortalité excessives qui peuvent être prévenues en Afghanistan.

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: أجرينا دراسة مقطعية قارنت بين الاستفادة من الخدمات الصحية في المدة منطرق البحث
يونيو / حزيران إلى سبتمبر / أيلول على مدى 3 سنوات متتالية، 2019 و2020 و2021 ، باستخدام
أحد عشر مؤشراً من مؤشرات المخرجات التي أبلغت بها نُظُم معلومات إدارة شؤون الصحة .
واستخدمنا " أداة الأرواح المُنقذة " ، وهي نموذج حسابي خطِّي يحتوي على بيانات مُدخَلة
من المسح الصحي السكاني في أفغانستان 2015 ، لحساب المعدلات الإضافية لوفيات الأمهات
والحديثي الولادة والأطفال عند انخفاض التغطية الصحية بنسبة 25% و50% و75% و95% ،
على التوالي .

: خلال شهرَي أغسطس / آب وسبتمبر / أيلول 2021 ، وبعد الإعلان عن حظر التمويل،النتائ ج
انخفض استخدام الخدمات الصحية إلى نسبة تتراوح بين 7 و59%. وكانت قطاعات تنظيم الأسرة
والعمليات الجراحية الكبرى ورعاية ما بعد الولادة الأكثر انخفاضًا . وانخفض الإقبال
على تحصين الأطفال بمقدار الثلث . ولمَّا كان مشروع " صحت مندي" (الصحة الجيدة) يتكفل
بحوالي 75% من الخدمات الصحية الأولية والثانوية، فإن وقف تمويل هذا المشروع سيؤدي
إلى 2862 حالة وفاة إضافية للأمهات، و 15741 حالة وفاة إضافية للحديثي الولادة، و 30519
حالة وفاة إضافية للأطفال، و 4057 حالة إملاص .

: يُعَدُّ الحفاظ على المستوى الحالي لتقديم الخدمات الصحية أمرًا بالغالاستنتاجات
الأهمية لتجنُّب حدوث زيادة مفرطة في معدلات المراضة والوفيات التي يمكن الوقاية منها
في أفغانستان .

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