THE BURDEN OF DISEASES

BRIEF OVERVIEW OF DISEASE PROFILE, SERVICE UTILISATION PATTERNS AND HEALTH OUTCOMES

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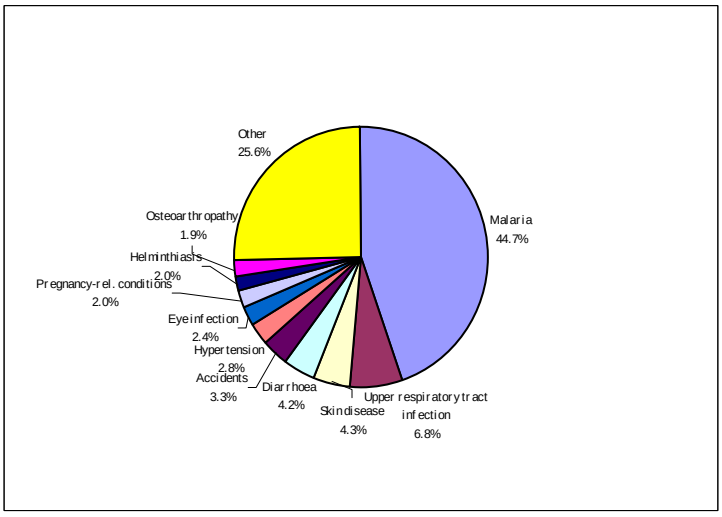
The outpatient morbidity patterns continue to show high incidence of communicable diseases, which is typical of the disease profile of a developing country. A critical analysis of the morbidity data shows that malaria contributes about 45% of the causes of outpatient attendance. Among people over 50 years hypertension and other cardio vascular diseases have become increasingly significant as a cause of outpatient attendance with hypertension alone constituting nearly 3% of the total cases in all age groups and nearly 10% among the elderly. This pattern of morbidity may have been determined by the success of the Expanded Programme on Immunization, which has contributed to a consistently decreasing incidence of vaccine preventable diseases. Despite these improvements the ten leading causes of outpatient visits in Ghana have changed very little over time with malaria accounting for nearly half of the total outpatient visits.

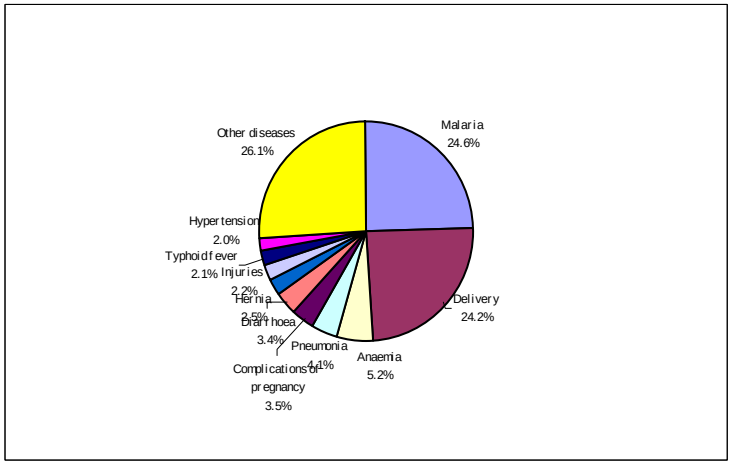
The figure below shows that in 2003 malaria ranked first, accounting for almost half (44.7%) of the total outpatient visits; it was followed by upper respiratory tract infections (6.8%), skin diseases (4.3%) and diarrhoea (4.2%).



Percent distribution of outpatient attendance by disease: ten leading causes (Ghana, 2003).

Admission patterns

Malaria was also the leading cause of hospital admissions, accounting for 24.6% of the total admissions in the selected districts and hospitals. Deliveries were the second leading cause of admissions, accounting for a similar percentage of 24.2% of the admissions. Much lower percentages of admissions were attributable to other conditions; in particular, anaemia ranked third (5.2%), followed by pneumonia (4.1%), complications of pregnancy (3.5%), diarrhoea (3.4%), hernia (2.5%), injuries (2.2%), typhoid fever (2.1%) and hypertension (2.0%) as shown in the figure below.

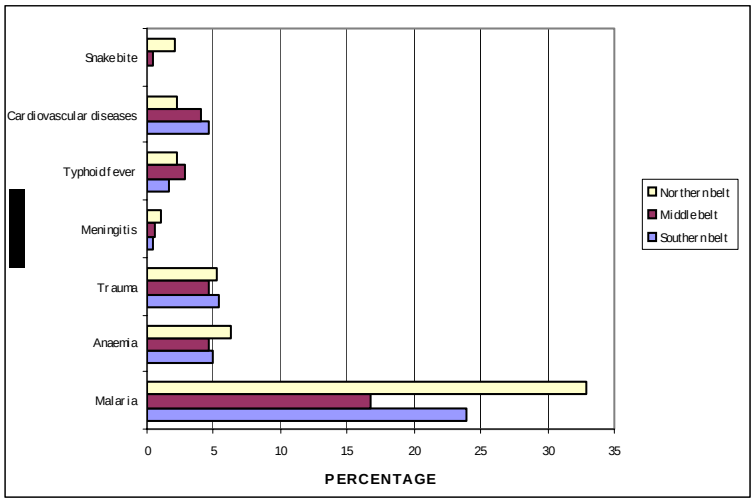


Percent distribution of admissions by disease in selected hospitals: ten leading causes (Ghana, 2003).

Malaria and deliveries together accounted for almost half of the total admissions in hospitals across the country. Even referral hospitals with advanced technical capacity devote considerable effort to delivering basic clinical care for non-complicated malaria cases and to providing maternity care for spontaneous deliveries. Maternity admissions accounted for similar percentages of the total admissions in regional hospitals (23.7%) and in mission hospitals (18.9%), while accounting for a higher percentage of admissions (29.1%) in district government hospitals. Over 85% of these maternity admissions were normal deliveries. The fact that referral hospitals are designed to have the capacity to treat complicated cases indicates that this may not be a very efficient way of utilizing hospital resources. In these hospitals the composition of skilled staff and medical equipment often results in higher costs for providing the same type of services that occurs in lower level facilities and in many instances such costs are transferred to the patient. In the context of the district referral system, improved screening of pregnancies may allow low risk deliveries to be

shifted to lower level facilities, such as maternity centres, if they are backed by a referral hospital that is capable of providing emergency obstetric care (i.e. with a reliable blood bank and the capacity to perform safe Caesarean sections).

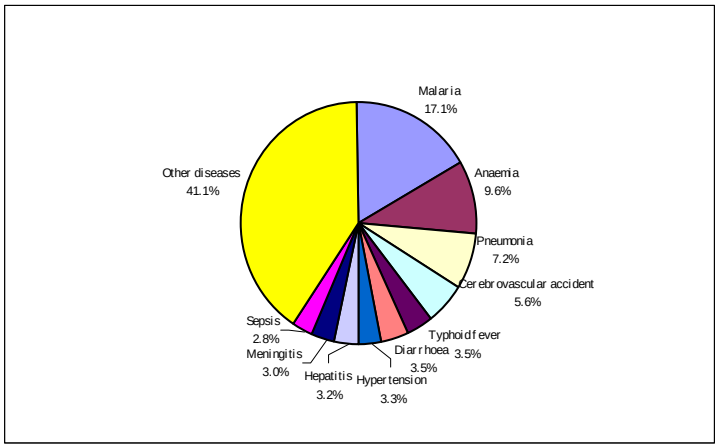
Ecological, climatic and socio-economic factors shaped the differences in disease profile and in service utilization pattern across the geographical belts of the country. The figure below illustrates the different patterns of admission for selected diseases across belts, with malaria showing the most pronounced gradient and accounting for almost one third (32.9%) of the total admissions in the northern belt, while accounting for lower percentages in the other geographical areas (24.0% in the southern belt and 16.7% in the middle belt). Admissions for anaemia and snake bite were also more frequent in the northern belt, accounting for 6.3% and 2.0% of the total admissions, respectively. Conversely, the highest percentage of admissions for cardiovascular conditions (including cerebrovascular accident, hypertension and all types of cardiopathy) was observed in the southern belt (4.6%), while admissions for typhoid fever were more frequent (2.9%) in the middle belt. As expected, meningitis was more frequent in the northern belt (1.1%). No significant variations in trauma-related admissions (including injuries, road traffic accidents, fractures, burns and poisoning) were observed across geographical belts.



Distribution of the percentage of admissions for selected diseases by geographical belt (Ghana, 2003).

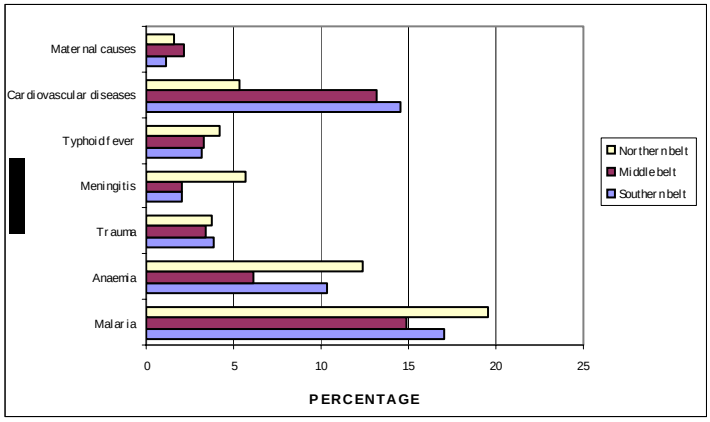
Mortality patterns

The overall in-hospital mortality pattern shows that malaria was the leading cause of in-hospital mortality with a Proportional Mortality Rate of 17.1%, followed by anaemia (PMR: 9.6%) and pneumonia (PMR: 7.2%). Two cardiovascular diseases (cerebrovascular accident and hypertension) were among the top ten causes of death, ranking in the fourth and seventh position respectively. A significant observation is the fact that HIV/AIDS was not included in the top ten list, which may be a reflection of under-diagnosis of this condition in the hospitals, and perhaps also of the health care seeking behaviour of the patients.



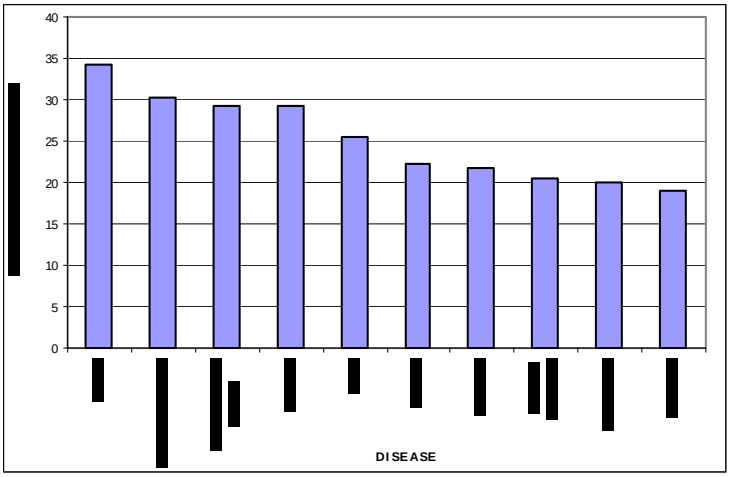
Percent distribution of deaths by disease in selected hospitals: ten leading causes (Ghana, 2003)

Different patterns of mortality were observed across the three belts, with malaria and anaemia accounting for the highest Proportional Mortality Rate in the northern belt (PMR: 19.5% and 12.4%, respectively). Other communicable diseases such as meningitis and typhoid fever showed the highest PMR in the northern belt (PMR: 5.7% and 4.2% respectively). The highest PMR for cardiovascular diseases (including cerebrovascular accident, hypertension and all types of cardiopathy) was observed in the southern belt (PMR=14.6%). No significant patterns of PMR for trauma (including injuries, road traffic accidents, fractures, burns and poisoning) and maternal causes of death were observed across belts.



Distribution of the Proportional Mortality Rate for selected diseases by geographical belt (Ghana, 2003).

The analysis of in-hospital mortality pattern is an important tool for assessing the quality of care. In general, the essence of health care quality management involves analysing variations and determining the structural and process features of health care organizations that affect health outcomes, with CFR for specific diseases being used as a key outcome indicator reflecting good clinical practices. The leading causes in terms of CFR are shown in the figure below. Tetanus, hepatitis and other liver diseases (including cirrhosis), cerebrovascular accident, HIV/AIDS, sepsis, meningitis and intestinal obstruction accounted for the highest CFR (between 35% and 20%), a finding which is consistent with the severity of these conditions.

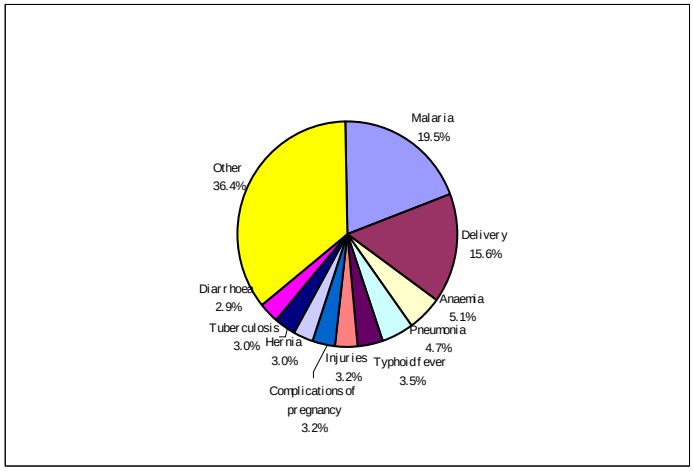


Case Fatality Rate by disease (with at least 40 deaths) in selected hospitals: ten leading causes (Ghana, 2003).

The overall morbidity and mortality pattern highlights the linkage between poverty, inequalities and health. Most of this burden results from diseases in childhood, such as malaria, diarrhoea and pneumonia whose occurrence could be dramatically reduced by low-cost and effective preventive and curative interventions. In other word, the marginal social and economic returns from investments in health are highest in avoiding these premature deaths. Since communicable diseases in childhood are, in general, more amenable to broad-based primary prevention efforts than are non-communicable diseases, their heavy burden reflects, among others, the difficult living conditions and the inadequacy of the primary health care system particularly in rural areas.

Service utilization patterns

The number and percentage of hospital bed days by disease, related to both frequency of admissions and duration of hospital stay, can be considered a good indicator of the relative burden of different diseases on hospital services. Malaria was the most important condition in terms of service utilization, accounting for 19.5% of the total bed days. The high burden of bed days attributable to malaria was mainly related to the high frequency of admissions rather than to the duration of stay, which was relatively short (3.2 days). Malaria was followed by deliveries (15.6%), anaemia (5.1%), pneumonia (4.7%) and typhoid fever (3.5%). Tuberculosis accounted for a much higher percentage of bed days (3.0%) with respect to its share of admissions (0.5%) because of its long duration of hospital stay, which was 23.0



Percent distribution of bed days by disease in selected hospitals: ten leading causes (Ghana, 2003).

As shown by the above figure, the leading causes of bed days were related to communicable diseases and maternal causes although these cases had relatively short duration of hospital stay.

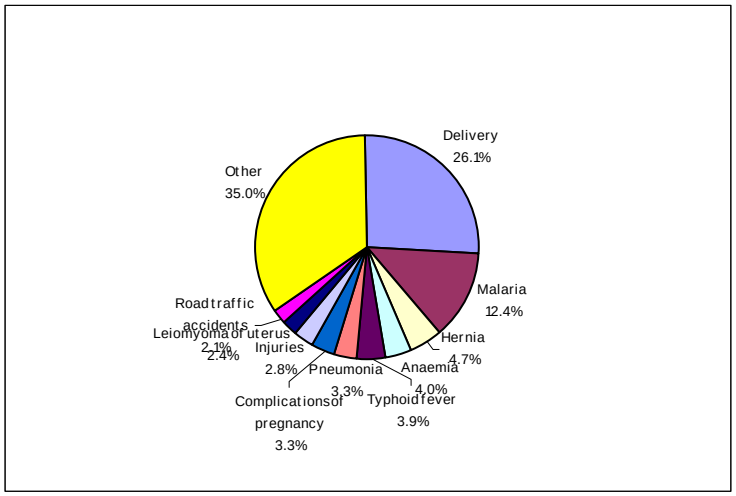
Non-communicable conditions and injuries consumed a far larger share of hospital resources than was indicated by the admission data. The different trauma-related conditions, when analysed separately, accounted individually for a relatively limited number of bed days. When these are aggregated into a single trauma-related category, it becomes the third leading condition (after malaria and delivery) in terms of bed days, accounting for a total of 50,539 bed days which represent 7.6% of the total.

User fees patterns

Costs to patient play an increasingly important role in both demand and supply-side of health care delivery. Achieving a balance between demand and service provision at each hospital level

depends on several factors, including underlying morbidity pattern, health care seeking behaviour of the population, availability of the services and their perceived quality, as well as their cost to patient. From the demand side, the health care seeking behaviour reflects the balance between costs to patients and benefits patients expect. From the supply side, user fees are becoming increasingly important in financing health services. The knowledge of the patterns of user fees across the spectrum of diseases is important to ensure the balance between equity and sustainability in health care delivery.

The relative contribution of the various diseases to revenue (Internally Generated Funds) shows that deliveries were the major revenue sources to hospitals across the country. Hospital deliveries alone account for over one fourth (26.1%) of the total user fees, with malaria (12.4%) and hernia (4.7%) being the second and third most important contributors.

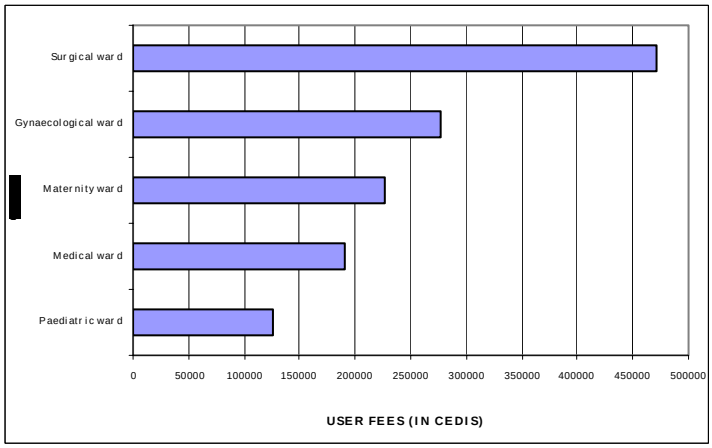


Percent distribution of user fees by disease in selected hospitals: ten leading causes (Ghana, 2003).

The average amount of user fees paid in the selected hospitals was ¢210,081.00 in 2003, all diseases included. However there was a wide variation across districts and by belts with the lowest fees being paid in the most deprived districts (¢ 77,274.00 and in the northern belt (¢123,572.00).

Achieving a balance between demand and service availability at each level depends on a system of relative prices, fee penalties for non-referred entry at upper levels, and enforcement of referral. User fees structure may be appropriate in redirecting demand by encouraging people to seek care at the primary level when higher user charges are imposed on self-referral to secondary facilities. The lowest fees were paid in the district governmental hospitals (¢120,634.00), whereas higher levels of average fees were paid in regional hospitals (¢ 240,632.00) and in mission hospitals (¢ 240,230.00).

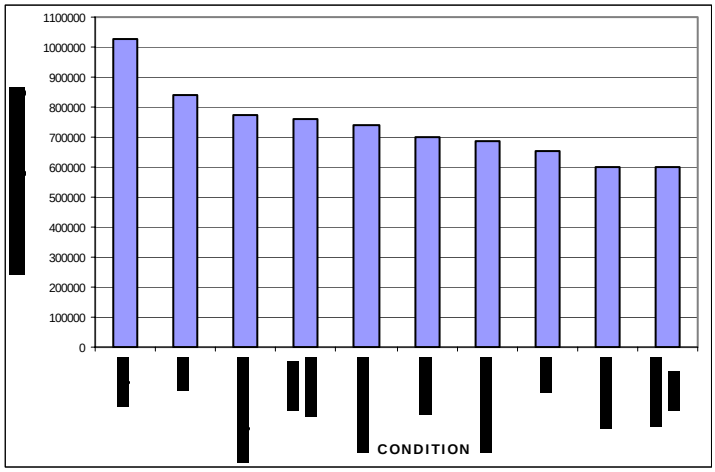
In general, the highest fees paid were for emergency care and surgical conditions in every ward, such as intestinal obstruction (¢756,995.00) in the surgical ward, leiomyoma of uterus (¢774,509.00) in the gynaecological ward, and caesarean section (¢743,249.00) in the maternity ward. These patterns shaped the distribution of the user fees by ward with surgical and gynaecological wards accounting for the highest average fees (¢ 470,986.00 and ¢276,806.00 respectively).



Distribution of user fees by ward in selected hospitals (Ghana, 2003)

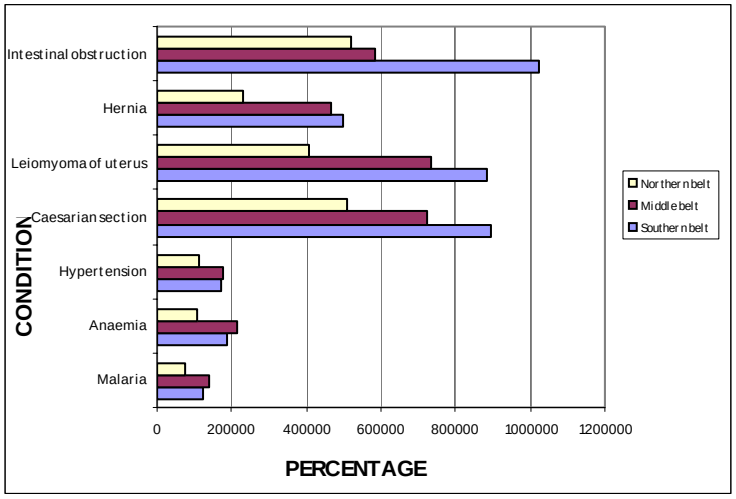
The leading causes in terms of fees paid by patients were gangrene, goitre, leiomyoma of uterus, intestinal obstruction, and delivery by caesarean section. For these cases patients paid between ¢1,000,000.00 and ¢700,000.00. It is worth noting that high fees were paid for some exempted conditions. TB patients for example, were frequently not exempted and paid an average of ¢ 401,203.00.

The average user fees for a condition may hide wide differences according to its severity and the subsequent variations in costs of diagnostic and therapeutic procedures. For example, the average user fees for malaria was ¢105,776.00. This ranged between ¢103,443.00 for non-complicated malaria and ¢183,367.00 for cerebral malaria. Similarly, the costs for delivery, which had an average of ¢226,524.00 ranged between ¢ 140,196.00 for spontaneous delivery and ¢ 743,249.00 for Caesarian section.



Distribution of user fees by disease (with at least 20 admissions/year) in selected hospitals: ten leading causes (Ghana, 2003).

A wide variation in user fees across geographical belts was also observed, with the lowest fees being consistently paid in the facilities located in the northern belt. Fees paid for surgical conditions in the northern belt were roughly half of those paid in the southern belt. Between the southern and middle belts, while there were significant differences between some cases, particularly surgical cases, there tended to be some level of uniformity in the fees charged for other diseases, especially the medical conditions, with the management of malaria and anaemia being slightly higher in the middle belt than in the southern belt.



Distribution of user fees for selected diseases by geographical belt (Ghana, 2003).

Conclusions

The overall morbidity and mortality pattern highlights the linkage between poverty, inequalities and health. Most of this burden results from diseases, such as malaria, diarrhoea and pneumonia whose occurrence could be dramatically reduced by low-cost and effective preventive and curative interventions. In particular the observed mortality pattern also highlights the persistent burden of childhood communicable diseases, for which preventive measures (such as sanitation and health education) and simple curative measures (such as malaria treatment and oral rehydration) can be delivered efficiently through community-based care and outreach services. This shows the potential benefits in the use of community-based care supported by the referral network. This has been the basis for the development of the CHPS (Community-based Health Planning and Services) in Ghana. However, the growing burden related to high-cost chronic and degenerative conditions, such as hypertension, other cardiovascular diseases and diabetes, must be taken into account for planning purposes. This is important in the perspective of the demographic-epidemiologic transition, the process by which falling fertility and mortality produce markedly rapid declines in communicable diseases among the young, leading to ageing population with a rising proportion of older members among whom chronic disorders predominate.

A double burden of disease is already emerging at the early stage of the epidemiologic transition, with a mix of persistent, new and re-emerging infectious diseases and increasing chronic conditions and injuries. This will lead to fundamental changes in the volume and composition of demand for health care, with a more complex case mix and a more costly service utilisation patterns. In terms of long term planning such information cannot be overlooked and attempts have been made to provide further analysis in the next sections.