Cataract in Latin America: findings from nine recent surveys

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ABSTRACT

Objectives. *To review recent data on blindness and low vision due to cataract in Latin America.*

Methods. *Presentation of findings from population-based prevalence surveys conducted between 1999 and 2006 in nine Latin American countries covering 30 544 people aged 50 years and older.*

Results. *Prevalence of cataract blindness in people 50 years and older ranged from 0.5% in Buenos Aires to 2.3% in four provinces of Guatemala. Low vision from cataract ranged from 0.9% in Buenos Aires to 10.7% in Piura and Tumbes Districts in Peru. Cataract surgical coverage (CSC) was good in Campinas, Brazil; low in Paraguay, Peru, and Guatemala; and moderate in the other areas. Good visual outcome after cataract surgery nearly conformed to World Health Organization (WHO) guidelines in Buenos Aires (more than 80% of operated eyes able to see 20/60 or better), but ranged from 60% to 79% in most of the other settings, and was less than 60% in Guatemala and Peru. "Unaware that treatment is possible," "contraindications," "cannot afford," and "fear of operation" were the most common explanations for failure to come forward for surgery.*

Conclusions. *In Campinas, Brazil, cataract is fairly well controlled. In Buenos Aires, the visual outcomes after cataract surgery nearly meet WHO standards. In most countries in Latin America, however, cataract intervention needs to be intensified and visual outcome improved. Reducing the costs of cataract surgery and providing effective health education and adequate program management are essential to combat the expected increase in visual impairment due to cataract in the region.*

Key words Cataract, blindness, population surveys, Latin America.

The latest global estimates indicate that approximately 1.7 million people are blind and 9.1 million people have low vision in Latin America and the Caribbean, excluding Cuba. Cataract is the major cause of blindness (affecting 0.75 million people or 44.1%) and the major cause of low vision (affecting 4.7 million people or 51.6%) (1).

These estimates are based on eight population-based surveys, four of which were conducted at least 20 years ago. Results are not always comparable because the studies covered different age groups and used different definitions of blindness and low vision (2).

In 1999, the World Health Organization (WHO) and the International Agency for the Prevention of Blindness (IAPB) launched a joint initiative known as "VISION 2020: The Right to Sight," which aims to eliminate avoidable blindness by the year 2020 (3). The VISION 2020 strategy advocates the development of district-level plans to reduce avoidable blindness. Since 1999, population-based surveys were conducted in nine countries in Latin America to provide baseline data on blindness and low vision for these action plans. Findings from eight of the studies were published earlier (4–11); the results

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from the ninth survey (Nuevo Léon State in Mexico) are presented here. This review presents and compares the recent findings on cataract in Latin America with those from the earlier studies in order to identify trends. The findings from these recent studies may give a better picture of the current situation on cataract blindness in Latin America.

METHODS

Seven of the nine studies used Rapid Assessment of Cataract Surgical Services (RACSS), a standardized methodology for rapid population-based assessments of blindness and visual impairment with emphasis on cataract (12). The RACSS was based on multistage cluster sampling (with a cluster size between 40 and 60) and covered people aged 50 years or older residing in the cluster. The two most recent studies (conducted in Mexico and Chile) used Rapid Assessment of Avoidable Blindness (RAAB), a recent update of RACSS (13). Data analysis was performed using the automated and standardized modules of the RACSS and RAAB software. Results of both software packages are comparable. Details of the methodology, the selection of the clusters, and the prevalence of blindness and its main causes are published elsewhere (14).

RACSS surveys were carried out in Asia, Africa, Latin America, and the former Soviet republics (15, 16). Since 2005, surveys have been carried out in Kenya, Mexico, Bangladesh, Chile, Philippines, Rwanda, Botswana, Laos, China, Vietnam, Cambodia, The Gambia, and Tanzania, using the updated (RAAB) methodology (17–20).

WHO defines blindness as visual acuity (VA) less than 20/400, severe visual impairment (SVI) as VA less than 20/200 to 20/400, and visual impairment (VI) as VA less than 20/60 to 20/200, based on measurements of the better eye with best correction. SVI and VI may also be grouped together under the broader category of "low vision." The RACSS and RAAB for this study applied the same WHO VA definitions, but also measured the better eye with *available* correction. Hereby blindness and low vision due to refractive errors were also assessed.

MATERIALS

All nine RACSS and RAAB surveys in Latin America were conducted between 1999 and 2006. Selection of the survey area was determined by the local nongovernmental organization (NGO) or university initiating the survey, usually based on a particular research interest in the respective areas. In Paraguay and Venezuela, the survey covered the entire country, whereas surveys in the other countries were limited to one or more provinces, a city, or several districts. Considerable variation exists in socioeconomic conditions and availability and affordability of eye care services across the different study areas (Table 1).

The proportion of the population in the survey area aged 50 years and older ranged from 11.9% (in the four Guatemalan provinces) to 32% (in Havana). In the mainly urban areas of Buenos Aires; Campinas, Brazil; Nuevo Léon, Mexico; and Bio Bio, Chile, this demographic group represented between 14% and 21% of the survey sample, whereas in the rural areas of Peru and Guatemala it represented only about 12%.

The sample size for each survey was calculated based on the expected prevalence of blindness in people aged 50 years and older, allowing for a variation of 20% around this expected prevalence, with a probability of 95%, and using a cluster sampling methodology. All data were analyzed using the built-in report-generating modules of the RACSS and the RAAB software.

The proportion of the population aged 50 years and older in the nine countries studied is expected to increase by 22 to 67% between 2005 and 2025 (21) (Table 2). The growth in this segment of the population will increase the annual incidence of cataract and the subsequent need for cataract surgical services.

RESULTS

Cataract was the main cause of all blindness (47 to 87%) in eight of the nine surveys (Paraguay, Peru, Argentina, Cuba, Venezuela, Guatemala, Mexico, and Chile); in the survey in Campinas, Brazil, cataract caused 41% of all blindness, and posterior segment diseases caused 47%.

Table 3 shows the prevalence of blindness and low vision due to cataract

TABLE 1. Socioeconomic status and number of survey respondents in nine RACSS[a]/RAAB[b] studies in Latin American countries, 1999–2006

		Survey					
Year	Country	Survey area	Socioeconomic conditions	Total population	Sample size	Population 50+ (%)[c]	Coverage (%)[d]
1999	Paraguay	nationwide	all[e,f]	4 153 000	2 136	12.2	89.0
2002	Peru	Piura and Tumbes Districts	rural; poor	1 838 135	4 782	13.1	99.6
2003	Argentina	part of Buenos Aires	urban; poor to middle income	2 716 573	4 302	21.1	93.5
2003	Brazil	Campinas City	urban; all[f]	980 000	2 224	17.8	92.7
2004	Cuba	Havana City	urban; poor to middle income	2 175 913	2 760	32.0	98.4
2004	Venezuela	nationwide	all[e,f]	23 054 210	3 317	13.7	97.6
2004	Guatemala	four provinces	urban and rural; poor to middle income	1 339 508	4 806	11.9	98.1
2005	Mexico	Nuevo Léon State	urban and rural; poor to middle income	3 834 141	3 780	14.0	99.6
2006	Chile	Bio Bio Province	urban and rural; poor to middle income	1 861 562	3 000	20.4	97.2

Sources: Data from references 4–11.
[a] Rapid Assessment of Cataract Surgical Services, a standardized methodology for rapid population-based assessments of blindness and visual impairment with emphasis on cataract.
[b] Rapid Assessment of Avoidable Blindness, a recent update of RACSS.
[c] Proportion of survey area population aged 50 years or older.
[d] Proportion of eligible sample population surveyed.
[e] Rural and urban.
[f] Poor, middle income, and upper income.

TABLE 2. Estimated proportion of population aged 50 years and older in nine Latin American countries and increase from 2005 to 2025

Country	2005 (%)	2010 (%)	2015 (%)	2020 (%)	2025 (%)	Increase (%)
Paraguay	13.7	15.0	16.1	17.2	18.3	33.9
Peru	15.2	16.9	19.1	21.6	24.2	59.8
Argentina	24.1	25.2	26.2	27.5	29.3	21.7
Brazil	17.3	19.7	22.6	25.7	28.8	66.3
Cuba	25.3	27.6	32.3	37.6	41.6	64.9
Venezuela	14.8	16.8	18.9	20.9	22.9	55.0
Guatemala	11.3	12.1	12.8	13.3	14.5	27.9
Mexico	15.2	17.3	19.8	22.4	25.3	67.1
Chile	21.8	24.6	27.5	29.9	31.8	46.3

Source: Data from reference 21.

among people aged 50 years and older in the nine survey areas. The prevalence for blindness ranged from 0.5% in Buenos Aires to 2.3% in four provinces of Guatemala. The variations for low vision due to cataract were considerably higher, ranging from 0.9% in Buenos Aires to 10.7% in Piura and Tumbes Districts. In most areas, prevalence was higher among females compared to males, except in Nuevo Léon and Bio Bio. However, the difference was not significant.

The calculation of the 95% confidence interval (CI) uses the sampling error for cluster sampling according to Bennett et al. (22).

Cataract surgical coverage (CSC) is an indicator measuring the proportion of all operable cataract that has been operated upon (23). The CSC (persons) estimates the proportion of people with bilateral operable cataract that have been operated in one or both eyes. The CSC (eyes) estimates the proportion of eyes with operable cataract that have been operated upon at one point in time. Operable cataract is defined at three different levels of visual acuity: less than 20/400, less than 20/200, and less than 20/60, depending on the common threshold for cataract surgery in the country or area under review. The level of VA at the time of operation is not known; therefore, the CSC is an approximation of the actual situation.

The CSC varies considerably, with the lowest coverage among the poor rural populations of Peru, Guatemala, and Paraguay, and higher coverage in the richer urban populations of Brazil, Argentina, and Mexico (Table 4). In Piura and Tumbes Districts, in Peru, for every operated patient there are 3 patients bilaterally blind, 7 patients with VA less than 20/200, and 14 patients with a VA less than 20/60 due to cataract who have not yet been operated, and 1 out of 5 eyes blind due to cataract is treated operatively. In Campinas, Brazil, 9 out of 10 people bilaterally blind due to cataract have been operated in one or both eyes, and 7 in 10 with a VA less than 20/60; visual loss from cataract is fairly well controlled by the current cataract surgical services.

In all operated patients, visual acuity is measured with available correction and with pinhole correction, which is used as a proxy for best correction. In a population-based survey there is usually considerable variation in the surgical technique, skills, and knowledge of the eye surgeon; time passed since surgery; and conditions under which the surgery was performed. Therefore, visual outcome data from surveys usually show worse results than outcome measured in the first year after cataract surgery in the better institutions. To reduce the impact of time after surgery only results in eyes operated 5 years or less before the time of the survey are shown in Table 5.

Table 5 shows that with available correction 8% (in Buenos Aires) to 43% (in four provinces in Guatemala) of the operated eyes cannot see 20/200, and 40% (in Guatemala) to 81% (in Buenos Aires) can see 20/60. The proportion of intraocular lens (IOL) surgery is lowest in Paraguay and Peru and highest in Argentina, Mexico, and Chile. With pinhole correction, the proportion of people not able to see 20/200 dropped by 1–9% and the proportion of people with VA less than 20/60 to 20/200 dropped by 0–15%, whereas the proportion of people able to see 20/60 increased by 5–20%.

TABLE 3. Age- and gender-adjusted prevalence of bilateral blindness and low vision due to cataract among survey respondents aged 50 years and older in nine Latin American countries, 1999–2006

	Pinhole visual acuity					
	Less than 20/400 to NLP[a]			Less than 20/60 to 20/400		
Country (survey area)	Male Prevalence (%)	Female Prevalence (%)	Total Prevalence (CI 95%)[b]	Male Prevalence (%)	Female Prevalence (%)	Total Prevalence (CI 95%)
Paraguay (nationwide)	1.8	2.2	2.0 (1.3–3.0%)	1.9	3.1	2.5 (1.7–3.3%)
Peru (Piura and Tumbes Districts)	2.1	2.2	2.1 (1.7–2.6%)	9.8	11.6	10.7 (10.3–11.1%)
Argentina (part of Buenos Aires)	0.4	0.6	0.5 (0.3–0.7%)	0.6	1.1	0.9 (0.6–1.1%)
Brazil (Campinas City)	0.6	0.6	0.6 (0.2–1.0%)	1.3	2.7	2.1 (1.6–2.5%)
Cuba (Havana City)	1.1	1.4	1.3 (0.8–1.8%)	5.4	6.3	5.9 (5.5–6.4%)
Venezuela (nationwide)	1.2	1.4	1.3 (0.9–1.7%)	1.7	2.1	1.9 (1.4–2.3%)
Guatemala (four provinces)	1.8	2.9	2.3 (1.7–2.9%)	2.5	2.9	2.7 (2.3–3.2%)
Mexico (Nuevo Léon State)	1.0	0.5	0.7 (0.4–1.1%)	2.9	2.4	2.6 (2.3–3.0%)
Chile (Bio Bio Province)	0.8	0.4	0.6 (0.3–0.9%)	2.0	2.8	2.4 (2.1–2.7%)

Sources: Data from references 4–11.
[a] NLP = no light perception.
[b] CI = confidence interval.

TABLE 4. Proportion of cataract surgical coverage for people and for eyes with pinhole visual acuity less than 20/400, 20/200, and 20/60 among survey respondents in nine Latin American countries, 1999–2006

Country (survey area)	Cataract Surgical Coverage					
	Persons (%)			Eyes (%)		
	Less than 20/400	Less than 20/200	Less than 20/60	Less than 20/400	Less than 20/200	Less than 20/60
Paraguay (nationwide)	44	36	32	37	28	22
Peru (Piura and Tumbes Districts)	24	12	7	20	8	6
Argentina (part of Buenos Aires)	74	66	47	66	57	47
Brazil (Campinas City)	89	83	69	83	73	59
Cuba (Havana City)	74	65	40	49	42	25
Venezuela (nationwide)	70	59	52	55	46	39
Guatemala (four provinces)	38	29	15	26	19	15
Mexico (Nuevo Léon State)	79	64	50	65	49	37
Chile (Bio Bio Province)	76	71	45	48	42	26

Sources: Data from references 4–11.

Table 6 shows considerable variance across different survey areas in cataract surgery provider. For example, in Cuba all surgeries are carried out in the public sector, whereas in Argentina they are mainly done in the private sector; in Guatemala and Paraguay cataract surgeries are performed by all four sectors. In general, most cataract operations are done in public hospitals (ranging from 100% in Havana to 15% in four provinces of Guatemala). A considerable number of cataract operations are also done in private hospitals. NGO hospitals that perform cataract surgery are less common and are mainly found in Guatemala, Paraguay, and Mexico. Surgeries carried out in improvised settings with services provided by visiting surgeons are mainly done in Guatemala, Paraguay, and Venezuela.

Almost half of the operated patients indicated that they did not pay anything for their cataract operation, while 29% reported paying part of the costs and 22% said they paid the full amount. In Nuevo Léon, Mexico, the question on cost was not included in the survey.

Many patients who are visually impaired due to cataract do not come forward for surgery. To help determine why, those with a pinhole VA less than 20/200 due to cataract in one or both eyes were asked why they had not yet been operated upon. Table 7 shows the most commonly reported barriers (reasons for failure to come forward for surgery) in the nine surveys. The answers of the respondents will help clarify the reasons why people who are blind or severely visually impaired due to cataract have not undergone operative treatment, and may also help service providers implement more accessible program activities.

There was considerable variation in reported barriers to cataract surgery. Lack of awareness that treatment was possible was the most commonly given explanation for failure to come forward for operative treatment, particularly in Guatemala, Mexico, and Cuba. The second most cited barrier was "other disease contraindicating operation," particularly in Paraguay, Brazil, and Cuba. "Cannot afford operation" was a common response in Argentina, Venezuela, and Peru, whereas "fear of operation" was commonly cited in Chile and Peru.

Cataract output is usually measured as the cataract surgical rate (CSR)—the number of cataract operations per million population in a defined area during a particular year. In Table 8, the CSR in these nine countries in 2005 is compared with the number of ophthalmologists conducting cataract surgery per million population. This gives the average number of cataract operations per ophthalmologist in each country.

The CSR is highest in Cuba, Brazil, and Argentina, and lowest in Guatemala. However, the average number of cataract operations per eye surgeon is highest in Guatemala and lowest in Argentina. In 2005, the large majority of surgeries (95–100%) were performed with IOLs (intraocular lenses).

DISCUSSION

Variations across survey areas

There is great variation in socioeconomic conditions and availability of cataract surgical services in Latin America. This may largely explain the disparity in prevalence of blindness and, even more so, low vision, due to cataract in the nine

TABLE 5. Outcome of cataract surgery operated within last 5 years with available correction and with pinhole correction among survey respondents in nine Latin American countries, 1999–2006

Country (survey area)	No.	IOL[a] (%)	With available correction			With pinhole correction		
			Greater than or equal to 20/60 (%)	Less than 20/60 to 20/200 (%)	Less than 20/200 (%)	Greater than or equal to 20/60 (%)	Less than 20/60 to 20/200 (%)	Less than 20/200 (%)
Paraguay (nationwide)	58	60	60	17	22	69	17	14
Peru (Piura and Tumbes Districts)	60	82	43	33	23	63	18	18
Argentina (Buenos Aires)	99	94	81	11	8	90	3	7
Brazil (Campinas City)	205	93	69	13	19	75	8	17
Cuba (Havana City)	98	64	70	10	19	76	7	17
Venezuela (nationwide)	162	93	64	17	19	77	11	13
Guatemala (four provinces)	103	82	40	18	43	54	6	40
Mexico (Nuevo Léon State)	125	95	60	13	27	71	9	20
Chile (Bio Bio Province)	108	96	60	25	15	69	17	14

Sources: Data from references 4–11.
[a] IOL = intraocular lens.

TABLE 6. Cataract surgery setting and cost of surgery (for patient) reported among survey respondents in nine Latin American countries, 1999–2006

Country (survey area)	Setting (%)				Cost of surgery for patient (%)		
	Public hospital	NGO[a] hospital	Private hospital	Eye camp[b]	Free	Partial payment	Full payment
Paraguay (nationwide)	44	22	25	9	20	40	40
Peru (Piura and Tumbes Districts)	71	3	25	1	56	23	21
Argentina (Buenos Aires)	32	0	68	0	49	36	15
Brazil (Campinas City)	37	6	57	0	52	27	21
Cuba (Havana City)	100	0	0	0	99	1	0
Venezuela (nationwide)	31	2	59	8	23	20	57
Guatemala (four provinces)	15	32	29	24	35	57	8
Mexico (Nuevo Léon State)	64	12	22	2	. . .[c]	. . .[c]	. . .[c]
Chile (Bio Bio Province)	76	3	21	0	59	31	10
Average	52	9	34	5	49	29	22

Sources: Data from references 4–11.
[a] NGO = nongovernmental organization.
[b] Improvised setting with services provided by visiting surgeons.
[c] Survey did not include question about cost of surgery.

TABLE 7. Proportion of survey respondents bilaterally blind from cataract reporting barriers to surgery in nine Latin American countries,[a] 1999–2006

Barriers	Cub (%)	Par (%)	Arg (%)	Bra (%)	Ven (%)	Mex (%)	Chi (%)	Per (%)	Gua (%)
Unaware that treatment is possible	33	0	23	21	22	42	19	27	68
Believes it to be destiny/God's will	2	25	11	3	2	6	0	1	1
Told to wait for cataract to mature	10	5	0	9	0	8	0	0	2
Surgical services not available or very far	2	5	4	3	19	8	4	2	0
Don't know how to get surgery	0	5	4	6	0	8	12	0	0
Cannot afford operation	0	10	31	0	29	6	0	28	12
No one to accompany	6	0	4	3	4	11	0	1	0
No time available/other priorities	6	0	0	0	0	0	8	0	0
Old age and need not felt	4	0	0	6	6	0	4	0	0
One eye adequate vision/need not felt	0	0	0	0	0	0	0	1	0
Fear of operation	4	0	0	12	6	6	27	23	10
Fear of losing eyesight	2	0	8	0	3	3	4	14	5
Other disease contraindicating operation	31	50	15	38	9	3	23	4	3
Total	100	100	100	100	100	100	100	100	100

Sources: Data from references 4–11.
[a] Cub = Cuba; Par = Paraguay; Arg = Argentina; Bra = Brazil; Ven = Venezuela; Mex = Mexico; Chi = Chile; Per = Peru; Gua = Guatemala.

surveys reviewed here (24). The demand for cataract surgery is expected to be higher among wealthy urban professionals compared to poor rural laborers. Also, the visual acuity threshold for cataract surgery may be higher in rural areas.

Service provider. While the majority of cataract operations reported in these studies were conducted in public and private hospitals, there was wide variation across countries. In Cuba, for example, all surgery was provided by the government, whereas in Guatemala, 1 in 4 surgeries were performed in eye camps under improvised conditions. Close cooperation and collaboration between the different sectors on planning and implementation of cataract intervention activities is required to ensure optimal utilization of all available manpower and resources.

Recommendations

Cataract surgical coverage. CSC is fairly high in Campinas, Brazil (73% for eyes less than 20/200); moderate in Mexico, Chile, Argentina, Venezuela, and Cuba (40–60%); and low in Paraguay, Peru, and Guatemala (less than 30%). There is an urgent need to increase cataract surgical output and thereby increase the CSC to counteract the increase in incidence of cataract that is expected to result from the aging trend in Latin America (shown in Table 2).

Barriers to cataract surgery. Many people with cataract do not come forward for surgery, reporting lack of awareness that treatment is possible, contraindications, cost ("cannot afford operation"), and "fear of operation" as their main barriers (Table 7). By reducing the price of cataract surgery for those who cannot afford it, and improving health education on cataract, the number of cataract operations could be increased considerably. Determining the contraindications specific to cataract surgery may also prove useful. The data on barriers presented in this study come from one question on the RAAB survey form and thus give only a crude impression of the main reasons why people do not take

TABLE 8. Average number of cataract surgeries per ophthalmologist based on cataract surgery rate and number of eye surgeons per million population in nine Latin American countries, 2005

Country (survey area)	Cataract surgical rate (CSR) (No.)	Eye surgeons per million population (No.)	Average number of operations per eye surgeon	IOL[a] (%)
Paraguay (nationwide)	900	28	32	97
Peru (Piura and Tumbes Districts)	863	30	29	90
Argentina (Buenos Aires)	1 900	105	18	100
Brazil (Campinas City)	2 234	61	37	96
Cuba (Havana City)	2 487	66	38	99
Venezuela (nationwide)	1 438	54	27	98
Guatemala (four provinces)	850	13	65	95
Mexico (Nuevo Léon State)	1 200	34	35	95
Chile (Bio Bio Province)	1 860	47	40	99

Source: Database on Prevention of Blindness Indicators – Latin America, Pan American Health Organization, 2005.
[a] IOL = intraocular lens.

advantage of cataract surgical services. An additional, more comprehensive, qualitative study may better elucidate barriers to cataract surgery and could thus help improve surgical coverage. This type of study may, however, require specially trained interviewers who are not directly involved in the provision of cataract services.

Cataract outcome. According to the survey, cataract surgical services in Buenos Aires nearly meet WHO standards for good visual outcome (more than 80% of operated eyes can see 20/60 or better), with poor visual outcome (less than 20/200) in just 8% of eyes after cataract surgery (25). On the other hand, in Guatemala (43%), Mexico (27%), Peru (23%), and Paraguay (22%), more than 20% of eyes had poor visual outcome. These results are likely to deter patients from coming forward for surgery and thus indicate the need to review current procedures on case selection, surgery, and post-operative care to improve future results.

It should also be noted that in all nine surveys the proportion of eyes achieving good visual outcome increased by 10–20% with pinhole correction, indicating that good-quality post-operative optical services could improve surgery results considerably.

Output. The average number of cataract operations per eye surgeon per year in the nine Latin American countries surveyed ranged from 18 to 65 (less than 1 to 2 per working week). This is low compared to many other regions. The number of available eye surgeons suggests there is sufficient capacity to increase the number of cataract operations per year and thus reduce the prevalence of blindness and low vision caused by cataract.

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La catarata en América Latina: resultados de nueve encuestas recientes

RESUMEN

Objetivo. Hacer una revisión de los datos recientes sobre ceguera y visión reducida por catarata en América Latina.

Métodos. Presentación de los resultados de estudios de prevalencia de base poblacional realizados entre 1999 y 2006 en nueve países latinoamericanos, que abarcaron 30 544 personas de 50 años o más.

Resultados. La prevalencia de ceguera por catarata en personas de 50 años o más estuvo entre 0,5% en Buenos Aires, Argentina, y 2,3% en cuatro provincias de Guatemala. La visión reducida por catarata varió entre 0,9% en Buenos Aires y 10,7% en los distritos de Piura y Tumbes, Perú. La cobertura de cirugía de catarata fue buena en Campinas, Brasil; baja en Paraguay, Perú y Guatemala; y media en el resto de las áreas. Los resultados positivos de la cirugía de catarata estuvieron muy cerca de los estándares de la Organización Mundial de la Salud (OMS) en Buenos Aires (más de 80% de los ojos operados con visión de 20/60 o mejor), pero varió entre 60% y 79% en la mayoría de los otros lugares y fue inferior a 60% en Guatemala y Perú. Las explicaciones expuestas más frecuentemente para no someterse a esta operación fueron "no saber que el tratamiento es posible", "contraindicaciones", "no poder pagarlo" y "temor a la operación".

Conclusiones. En Campinas, la catarata está bastante bien controlada. En Buenos Aires, la visión después de la cirugía de catarata se acerca a los estándares de la OMS. No obstante, en la mayoría de los países de América Latina las intervenciones contra la catarata deben intensificarse y sus resultados deben mejorar. Es esencial reducir el costo de la cirugía de catarata y brindar una educación sanitaria eficaz y programas adecuados para combatir el esperado aumento en los trastornos de la visión por catarata en la Región.

Palabras clave Catarata, ceguera, encuestas demográficas, América Latina.