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# **The Value and Underutilization of Simple Reading Glasses in Inpatient Geropsychiatry**

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Reading glasses are an inevitable part of all our lives as we age. Forgetting one's reading glasses at a restaurant can be a disturbing reminder of one's dependence on them. However, we often minimize our overlook the value of reading glasses for our geriatric patients in an inpatient setting. We hope to point out both the value of reading glasses in improving quality of life and reducing dementia/delirium, as well as highlight their underutilization and surprisingly low cost as well as advocate for their place as standard equipment in inpatient geropsychiatry units.

## **VISUAL IMPAIRMENT AND COGNITION**

Uncorrected visual impairment is surprisingly common among the hospitalized elderly, especially among demented patients. One study showed that over 30% of dementia inpatients had uncorrected refractive errors, usually because the patients had misplaced their glasses or were unable to effectively express a need for vision correction (**Koch 2005**).

The correlation between visual impairment and mental status is well documented. Several studies have demonstrated a clear

correlation between visual impairment and cognitive decline in the elderly (**Rogers 2010; Lin 2004; Nguyen 2002; Anstey 2001**), most recently summarized in Ong (**2012**). Although the etiology of delirium remains complex and elusive (**Maldonado 2013**), McCusker et al (**2001**) found that, of 26 variables studied (age, absent clock, room changes, etc), not wearing prescribed glasses ranked as the 4<sup>th</sup> most significant factor that precipitated delirium, behind only physical restraints, presence of baseline dementia, and ICU admission. While Inouye (**1993**) found visual impairment to be the most predictive risk factor for delirium, more so than severity of illness, cognitive impairment, and high BUN/creatinine ratio. Correction of visual impairment has been shown to reduce agitation, increase social interaction, and significantly decrease Geriatric Depression Scale scores in a nursing home population (**Owley 2007**).

While most of the studies mentioned above have investigated visual impairment as any type of refractive error, such as myopia (near-sighted), hyperopia (far-sighted), etc. At least one study has addressed presbyopia (the condition corrected by reading glasses) specifically. Reyes-Ortiz et al (**2005**) found that uncorrected presbyopia among a large sample of elderly Hispanics led to significantly lowered MMSE scores.

PRESBYOPIA

Presbyopia is caused by age-related stiffening of the lens of the eye, resulting in decreased ability to focus light from near objects. The ability of the lens to change shape in order to focus light is known as accommodation. Presbyopia is universal and part of the normal aging process. It progresses in a fairly predictable manner. The average 12-year-old child is able to focus clearly on an object 8cm from the eye. By age 48, that distance moves out to 33cm as the lens becomes more rigid. By age 60, the lens has essentially lost its ability to contract/expand and the average person has lost accommodation, requiring reading glasses to focus...or the ability to stretch one's arms out longer (**Holden 2008**). Reading glasses are not prescription lenses. They come in fixed accommodative powers known as diopters (+1.00 being weaker, +3.00 being stronger), and are available for sale in drug stores or online without an optometrist/ophthalmologist prescription. Because presbyopia progresses in a predictable and established manner, the strength of one's reading glasses may be fairly accurately predicted from the chart shown in Table 1. This is useful as the patient does not need to be communicative in order to correct presbyopia, as long as the patient's age is known (**DuToit 2006**).

<b>AGE</b>	<b>POWER</b>
45	+1.00
50	+1.50
55	+2.00

60	+2.25
65+	+2.50 - +3.00

**Table 1:** The predictable progression of reading glass powers in adults. While this table is a standard guide, actual, powers may be influenced by underlying refractive error or pathology. Modified from Blystone 1999.

## COST EFFECTIVENESS

Reading glasses can be purchased online at surprisingly reasonable prices. This is mainly due to mass production in China. They can be purchased in bulk from websites such as [www.sharkeyes.com](http://www.sharkeyes.com) for as little as 90 cents each for various powers. Table 2 puts this cost into perspective along with other common items in geriatric care. While we think nothing of providing disposable non-slip socks or disposable adult diapers for our geriatric patients, we often neglect to consider offering reusable reading glasses, a one-time cost in the same price range, about half the cost of a plastic bed pan and one tenth that of a patient gown.

ITEM	COST
Tegaderm Transparent IV Dressing <sup>1</sup>	\$0.42
Plastic Isolation Gown <sup>1</sup>	\$0.54
TENA® Fresh Underpads (21.5" x 35.4") <sup>2</sup>	\$0.60
Adult Nasal Cannula <sup>1</sup>	\$0.88
KERLIX Roll <sup>1</sup>	\$0.88
Dynarex Non Skid Slipper Socks <sup>3</sup>	\$0.90
<b>Reading glasses <sup>4</sup></b>	<b>\$0.90</b>
TENA Classic Briefs <sup>2</sup>	\$0.99
Slimline Disposable Adult Diapers <sup>3</sup>	\$1.17
Plastic Bed Pan <sup>1</sup>	\$1.70

Disposable Enema Bag Set <sup>1</sup>	\$3.19
Foley Catheter Universal Insertion Tray - Sterile <sup>1</sup>	\$4.07
Cloth Patient Gown <sup>1</sup>	\$8.67
Aluminum Crutches <sup>1</sup>	\$34.25
Front Wheel Walker <sup>1</sup>	\$61.49

**Table 2:** Costs of common geriatric supplies with reading glasses (bolded). Pricing sources: 1: www.msdepot.com; 2: www.parentgiving.com; 3: www.mountain-medical.com; 4: www.sharkeyes.com

## A SURVEY OF UTILITY

In order to assess the awareness and use of reading glasses on inpatient geropsychiatry units, a brief, anonymous, 3-question survey was sent to the directors of most geropsychiatry fellowship programs around the U.S. with the hope that they would be forwarded to the directors of inpatient geropsychiatry units. Several of these programs did not have inpatient geropsychiatry units. Ten surveys were returned by directors of inpatient geropsychiatry units and the results are shown in Figure 1.

As shown in Figure 1, 80% of geropsychiatry units surveyed did not have a stock of reading glasses available to patients. This, despite a relatively accurate knowledge of the low cost of reading glasses, as well as a recognition of their helpfulness. We hope this will change. In a recent collaboration, the geropsychiatry unit at the University of California, San Diego was lucky enough to receive a donation of over 150 reading glasses from the San Diego Depression & Bipolar Support Alliance which are currently in daily use on our unit.

Does your geropsychiatry inpatient unit have a stock of reading glasses for patient use?

Yes	20% (2)
No	80% (8)

When bought in bulk, approximately how much would you expect the cost of one pair of reading glasses to be? es your geropsychiatry inpatient unit have a stock of reading glasses for patient use?

\$0.1	0	0% (0)
\$1.0	0	40% (4)
\$2.0	0	60% (6)
\$5.0	0	0% (0)

On a scale of 1 to 5, with 5 being very helpful and 1 being not at all helpful, how would you assess the helpfulness of being able to provide a pair of reading glasses to patient's on your geropsychiatry unit?

1	0% (0)
2	10% (1)
3	20% (2)
4	30% (3)
5	40% (4)

**Figure 1:** Results of a 3-question survey sent to directors of inpatient geropsych units across the U.S. N=10.

## CONCLUSION

Reading glasses are an effective and surprisingly inexpensive correction for presbyopia. Uncorrected visual impairment has been shown to decrease quality of life, increase cognitive decline, lower MMSE score, and strongly predispose to delirium. A survey of inpatient geropsychiatry units shows a recognition of the value of reading glasses, yet most units do not have these glasses available. At 90 cents/pair, simple reading glasses should be standard equipment in geriatric psychiatry units.

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