

ASSET VALUATION INSIGHTS

September 2017

Three Forms of Obsolescence:

Physical

Deterioration of property due to age, wear and tear, or abuse.

Functional

Reduction in the usefulness or desirability of an object because of an outdated design feature, usually one that cannot be easily changed.

Economic

An incurable loss in value, caused by unfavorable conditions external to the property, such as those that may have occurred in the economy, industry, government, or environment. Competition, availability of financing, loss of material or labor sources, increased costs are also factors that could cause a loss in value.

MEDICAL RECORDS: QUANTIFYING OBSOLESCENCE

Over time, certain assets, such as machinery, equipment and other tangible personal property become less valuable. An automobile is a common example of an asset that loses value over time. The loss in value can be due to three forms of obsolescence; physical, functional, and economic.

Obsolescence is the process of becoming outdated and no longer used. In the case of an automobile, physical obsolescence may relate to dents and scratches while functional obsolescence may result from obsolete technology imbedded in the car, such as a CD player or outdated navigation system. Lastly, economic obsolescence may result from a new model of the car being released in the market.

So, How is Obsolescence Quantified?

In the case of an automobile, there is readily available market data due to the high volume of transactions occurring in the market place. Any buyer or seller can reference Kelley Blue Book for the depreciated value of an automobile. This makes it easy to determine the value placed on the obsolescence factors discussed above.

Often times, however, when valuing certain tangible and intangible assets, a market comparison of the depreciated value of the asset is not readily available. In this case, we must reduce the replacement cost new (“RCN”) of the asset by an obsolescence factor. Several analytical methods can be employed to quantify obsolescence and appraisers must use caution not to double-count.

The focus of this article is the quantification of obsolescence of medical records, an intangible asset that is typically valued through a cost to replace basis since readily available transactional market data is not available.

Valuation of Medical Records

The value of medical records is often an important element to be considered in the acquisition of medical practices. When a hospital acquires a medical practice, Stark regulations and anti-kickback laws forbid goodwill in the form of the new owner's profit opportunity, as it could be argued that the hospital is paying for future referrals. Therefore, the purchase price of the medical practice is often supported by the aggregate value of the tangible (medical and office equipment, furniture and fixtures, buildings, etc.) and intangible (medical records, assembled work force, computer software, contracts, trade names, etc.) asset values.

A cost approach is the most common method used to value medical records. The cost to replace a medical record is typically calculated based upon time and expenses required to recreate the medical record. Once the cost to replace, or RCN, of the medical record is determined, depreciation in the form of physical, functional and economic obsolescence must be considered. Examples of physical, functional and economic obsolescence related to medical records are discussed below:

Physical – Medical records must first be defined as active or inactive. Medical practices typically consider an active medical record to be one in which the patient has visited the office in the past two to four years. Beyond that time period, the medical record is considered to be inactive. Since the patient associated with the inactive record is less likely to return to the medical practice, the medical record associated with that patient will be less valuable than a medical record of an active patient. Therefore, with the passage of time, an inactive medical record becomes less valuable. This obsolescence can be measured through a straight-line degradation ratio of age/life.

Functional - Medical records can be in the form of paper or electronic records. The availability and superior application of electronic medical software systems have caused paper medical records to become a less desirable form of record. Electronic medical records ("EMR"), not to be confused with electronic health records¹, enable an ease of data sharing, quality control, and monitoring that does not exist with paper records. Therefore, paper medical records possess functional obsolescence and it can be quantified by reducing the RCN of the paper record by the cost to convert to EMR. In the case of an EMR, functional obsolescence could be related to an outdated EMR software system. In this case, the RCN value must be reduced by the cost required to update or convert the software system.

Economic – As mentioned above, medical records can be in the form of paper or electronic records, however, paper-based health records are being forced out of existence by federal mandates requiring electronic records. All medical practices involved with Medicare were required to transition to electronic records by 2015 or face declining reimbursements of up to 5% a year. This mandate is a form of economic obsolescence of paper medical records. Therefore, the RCN of the paper medical record should be reduced by the cost to convert to EMR.

It is important to note that care must be taken not to double-count. For example, paper medical records include elements of functional and economic obsolescence. The remainder of this article presents case studies related to the valuation of a paper record and the valuation of an EMR.

¹ An EMR contains the medical and treatment history of a patient in one practice while an EHR goes beyond standard clinical data and is built to share information between other health care providers, such as laboratories and specialists, so they contain information from all the clinicians involved in the patient's care.

Case Study #1: Electronic Medical Records

Dr. Elfman is buying the tangible and intangible assets of the nephrology practice from a large health system. The tangible and intangible assets include machinery, equipment, furniture and fixtures, medical records and assembled workforce. The medical records are in electronic form, and are part of a greater EHR software system created, implemented, and maintained by the seller.

Dr. Elfman has a staff of eight people, which includes two physician assistants, two receptionists, three nurses, and an office manager. Dr. Elfman's practice is located in a major metropolitan city and has approximately 800 active patients, defined as any patient that has visited the office in the past three years and 200 inactive patients, defined as those patients that have not visited the office in prior three years.

Based on discussion with Dr. Elfman's staff, it is estimated that, on average, each EMR would take approximately 30 minutes to recreate. The average labor cost, including fringe benefits, of \$15.00 per hour; an overhead allocation for facility rental cost per employee of \$1.50 per hour; and software maintenance costs of \$10.00 per hour are calculated based on inputs provided by Dr. Elfman's staff. The total cost to recreate one active EMR was determined to be \$19.00 (Table 1).

The fair market value of an inactive EMR must be reduced for physical obsolescence. As mentioned earlier, physical obsolescence can be measured through a straight-line degradation ratio of age/life. The average age of Dr. Elfman's patients is 60 years and the average life expectancy in the United States is approximately 79 years. Therefore, the average remaining life of Dr. Elfman's patients is 19 years. With each year that passes, an inactive medical record depreciates by 5.3% (1/19 years).

Dr. Elfman converted his paper records to EMRs in 2010 so all inactive EMRs are less than 7 years old. The date of last visit for each inactive patient is spread evenly amongst years four to seven, as shown in Table 2. The weighted average ratio of age to remaining life is determined to be 28.9% and represents the amount of physical obsolescence of the inactive EMRs.

**Table 1:
Cost to Replace One EMR**

Time to Replace (hrs)*	0.50
Avg. Labor Rate / Hour*	\$15.00
Total Labor Cost	\$7.50
Rental Allocation*	\$1.50
Software Maint. Cost*	<u>\$10.00</u>
RCN	\$19.00

**Calculation is beyond the scope of this exercise*

**Table 2:
Calculation of Physical
Obsolescence**

EMR Status	Yrs Since Last Visit	Alloc. Patients since Last Visit	Age / Remain. Life
Inactive	1	0%	5.3%
Inactive	2	0%	10.5%
Active	3	0%	15.8%
Active	4	25%	21.1%
Active	5	25%	26.3%
Active	6	25%	31.6%
Active	7	25%	36.8%
Weighted Average			28.9%

**Table 3:
FMV of an Active and Inactive EMR**

FMV of an Active EMR	\$19.00
Less Obsolescence:	
Physical (28.9%)	\$5.50
Functional	\$0.00
Economic	<u>\$0.00</u>
FMV of an Inactive EMR	\$13.50

Functional obsolescence was considered, however, Dr. Elfman will continue to use the same EMR software program post-acquisition, therefore, no conversion costs are required. Additionally, economic obsolescence was considered, but not needed, as the EMRs reflect current technological standards mandated by the government.

As presented in Table 3, the total RCN of an EMR was reduced by a physical obsolescence factor of 28.9% which results in a fair market value of \$13.50 for an inactive EMR.

Case Study #2: Paper Medical Records

Dr. Peters has negotiated the sale of his family practice to a regional healthcare system. As is customary in the sale of a medical practice to a hospital system, the purchase price for Dr. Peter's practice will be based upon the aggregate fair market value of the tangible and intangible assets, excluding any goodwill resulting from the new owner's profit opportunity. The buyer has agreed to purchase only the active paper medical records.

Dr. Peters is 75 years old and has not converted his paper medical records to EMR. Dr. Peters' family practice was established more than 40 years ago, is located in a rural Pennsylvania town, has approximately 400 active patients, defined as any patient that has visited the office in the past two years and 100 inactive patients, defined as those patients that have not visited the office in prior two years. Dr. Peters has a small staff of four employees, which includes a receptionist, nurse, physician's assistant, and an office manager.

Based on discussion with Dr. Peters' staff, it was estimated that on average each paper record would take approximately 1 hour to recreate². The average labor cost, including fringe benefits, of \$15.00 an hour, an overhead allocation for facility rental cost per employee of \$1.50 per hour and material costs of \$3.50 per record are calculated based on inputs provided by Dr. Peters' staff and are presented in Table 4. The total cost to recreate one paper record was determined to be \$21.50.

**Table 4:
Cost to Replace
One Paper Medical Record**

Time to Replace (hrs)*	1.00
Avg. Labor Rate / Hour*	\$15.00
Total Labor Cost	\$15.00
Rental Allocation*	\$1.50
Materials Cost*	<u>\$3.50</u>
RCN	\$21.50

**Calculation is beyond the scope of this exercise*

² The analysis behind this figure is beyond the scope of this article.

**Table 5:
Cost to Convert
One Paper Medical Record to EMR**

Time to Scan and Prep (hrs)*	0.50
Avg Labor Rate / Hour*	\$10.00
Total Labor Cost	\$5.00
Rental Allocation*	\$1.00
Abstraction Cost*	<u>\$10.00</u>
Total Conversion Cost	\$16.00

**Calculation beyond the scope of this exercise*

**Table 6:
FMV of
One Active Paper Medical Record**

Total RCN	\$21.50
Less Obsolescence:	
Physical	\$0.00
Funct. / Economic (75%)	<u>\$16.00</u>
Fair Market Value	\$5.50

The RCN must now be reduced by relevant obsolescence factors. Since only active patient records were being acquired, no physical obsolescence was deemed to be present. Post-acquisition, the buyer will convert all active paper medical records into EMRs for functional and economic reasons, as discussed earlier. It is presumed that all hypothetical buyers would also convert the paper records to EMRs based on the same functional and economic reasons. The buyer will incur a conversion cost that can be used to quantify the functional and economic obsolescence present in the Dr. Peters' paper medical records.

The cost to convert a paper record to EMR is based on inputs provided by management. The process to convert typically requires time and expenses associated with scanning the paper record into an electronic format and then abstracting the record. Abstracting a record requires a professional to search the medical record for key data required to be input into an EMR software system. As shown in Table 5, the total cost to scan and abstract one paper record was determined to be \$16.00.

The total cost to convert one paper medical record represents approximately 75% of the RCN ($\$16.00/\$21.50 = 75\%$), or an implied economic obsolescence factor of 75%. Therefore, the RCN of an active paper medical record must be reduced by an obsolescence factor of 75%. The fair market value of one active paper medical record was determined to be \$5.50, as presented in Table 6.

Conclusion

Transactional market data is not readily available for medical records, therefore, a replacement cost new ("RCN") must be reduced by an obsolescence factor. Several analytical methods can be used to quantify physical, functional, and economic obsolescence. Appraisers must use caution not to double-count. The fair market value of medical records can vary greatly based on the facts and circumstances surrounding the medical records. The value of a medical record is dependent not only by its quality but also form (paper versus electronic).

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