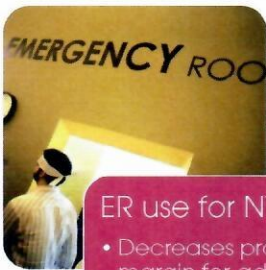


# Adult Dental Program ROI

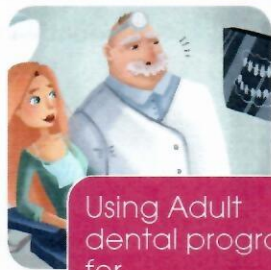
JENNIFER STANFILL  
LSUHSC-NO M.D. CANDIDATE 2020  
AMERHEALTH CARITAS LA INTERN

## Goal of the Adult Dental Program



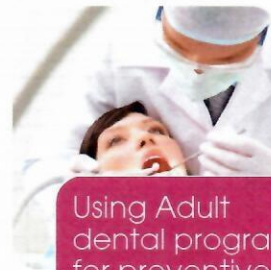
### ER use for NTDC

- Decreases profit margin for adult core benefits
- Inefficient use of resources i.e. time, money, labor



### Using Adult dental program for Comprehensive services

- Up to \$500/yr./mbr
- Cost of \$3.55PMPM



### Using Adult dental program for preventive services ONLY

- Reduces expense to \$225/yr./mbr
- Cost of \$3.55PMPM

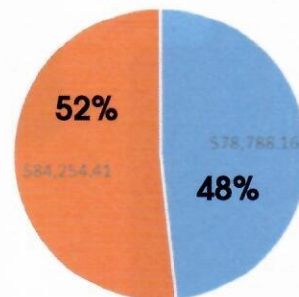
## Cost of Using the ER for Dental Services

- ▶ In Florida, in 2010, there were more than 115,000 hospital ER visits for dental problems
- ▶ In Georgia, in 2007, 60,000 ER visits for non-traumatic dental conditions or other oral health issues cost more than \$23 million
- ▶ In 2012, Medicaid spent \$520 million on dental-related emergency room visits (average of \$749 per visit)
- ▶ According to ADA.org, there are over 2 million visits every year to the hospital ER's for dental pain
  - ▶ 39% of those patients will return to the ER for the same issue
- ▶ Cost of the ER visit for dental pain can range from \$400 to \$1500 per visit (compared to a \$90 to \$200 visit to the dentist)
  - ▶ Extreme cases of untreated dental infections will cost hundreds of thousands of dollars in hospitalization and can be fatal

## Paid Adult Dental Claims for September 2019

	Procedures:	Sum of AMT PAID	Percent of \$\$ Spent
Exams	D0120	\$1,042.04	3%
	D0125	\$21,694.38	13%
	D0126	\$20.00	0%
Dental Films	D0210	\$17,046.24	7%
	D0215	\$2,046.24	2%
	D0220	\$20.00	1%
	D0225	\$20.00	0%
	D0270	\$1,042.04	1%
	D0275	\$8,274.41	5%
Adult Cleaning	D1110	\$78,788.16	11%
	<b>Sum of Preventive Services</b>		<b>48%</b>
Amalgam fillings	D2140	\$420.04	0%
	D2150	\$975.56	1%
	D2160	\$697.07	0%
	D2161	\$96.22	0%
Resin fillings	D2200	\$879.21	1%
	D2201	\$1,576.91	1%
	D2202	\$2,138.81	1%
Resin Crowns	D2300	\$3,198.18	2%
	D2301	\$172.77	0%
	D2301	\$1,206.45	3%
	D2302	\$7,518.95	5%
Tooth extraction & Removals	D2303	\$3,896.94	2%
	D2304	\$1,976.39	1%
	D7140	\$39,478.29	24%
	D7210	\$16,147.98	10%
	<b>Sum of Comprehensive Services</b>		<b>62%</b>
<b>Total AMT PAID</b>		<b>\$163,042.67</b>	

Amount Paid to Preventive Services vs. Comprehensive Services





## Where Are We On the Timeline?



## What is the Return on Investment?

$$\frac{(\text{Savings} - \text{Cost})}{\text{Cost}} \times 100$$

## Cost Calculation

- ▶ **No estimates** were used
- ▶ For the month of Sept 2019, I used the **\$3.55MPM** and multiplied by the number of Adult members that month and added the amount of **dental claims** paid for adult members
- ▶ For Sept 2019: 106,229 adult members x \$3.55 = **\$377,112.95**
- ▶ Add the dental claims for Sept 2019: \$377,112.95 + \$163,042.57 = **\$540,155.52**

## Savings Calculation

- ▶ If you think about the dental program as being on a **timeline**, where at the beginning of the program you have a majority of members using comprehensive services to play "catch up" for not having access to dental care previously (using the full \$500/yr. for all dental services) and at the maximum efficiency of the program, you have members using only the preventive services (\$225/yr. for just 2 exams, a set of films, and 2 cleanings)...
- ▶ While only using the data from one month of dental program expenses, I found that **651 individual members used the comprehensive services**. I estimated, based on data from the ADA.org, that if these members didn't have dental care access, that they would use the ER in place of these services, with **39% returning to the ER with the same complaint**. The number of ER visits would be estimated at **651 multiplied by 1.39, which is 905 ER visits** in one month.
- ▶ Based on additional data on ADA.org, the average amount that Medicaid paid for a dental-related visit to the ER was **\$749 in 2012**. Adjusting for **inflation**, that number increases to **\$837.62**.
- ▶ By preventing 905 ER visits at a cost of \$837.62 each, you have a **total savings of \$757,953.96**

## What is the Return on Investment?

- ▶  $ROI = ((Savings - Costs)/Costs) * 100$
- ▶  $ROI = ((\$757,953.96 - \$540,155.52) / \$540,155.52) * 100$
- ▶ **ROI = 40.32%**

	Sep-19
<b>BASICS</b>	
# of Adult Members	106229
# of Adult Members using dental benefits	1786
<b>COSTS</b>	
PMPM	\$3.55
Base cost of dental program	\$377,112.95
Claims PAID	\$163,042.57
Total Costs	\$540,155.52
<b>SAVINGS</b>	
Avg. cost of dental-related ER visit in 2012	\$749/visit
Cumulative Rate of Inflation 2012-2019	11.80%
Avg. Cost of dental-related ER visit in 2019	\$837.62
# of members who used comprehensive services	651
Estimate # of ER visits prevented	905
Total Savings	\$757,953.96
<b>ROI</b>	
Return On Investment (ROI)	40.32%

## Limitations

- ▶ I tried to **limit** the amount of **estimations** in this formula and to be as **conservative** as possible if an estimation was made.
- ▶ There should be **no errors in the cost calculation** which is straightforward using only 1 month of data.
- ▶ In estimating the savings, I tried to keep the **goal of the project** in mind. The dental program was initiated to provide access to dental care in place of using the ER for dental-related conditions.
- ▶ However, there are some members that still use the **ER for dental services**, and members that might not know they have access to dental care and therefore **underutilize the service**.



# A Deeper Dive into Data

PART 2

## Deeper Dive into Data

- ▶ **Premise:** Examine 100 Adult members and how they use their dental benefits over the course of 18 months
- ▶ **Hypothesis:** Initially, members will use the ER for dental related conditions, then once becoming aware of their dental benefits, they will use a bigger portion of their \$500/yr. dental benefits, but over time they will rely more on preventive services (\$225/yr. for exams, films, and cleanings).
- ▶ The 100 adult members were chosen at random off of the dental claims spreadsheet and additional data was examined **including ER visits** with any of these codes for the first 3 diagnoses: K00-K14, M26-M27, R682, Z0120-Z0121, Z463-Z464

# Analysis of 100 Adult Members

Dental Claims			
	Procedures	Sum of AMT PAID	Percent of \$\$ Spent
Exams	D0100	\$164.19	3%
	D0150	\$2,702.34	12%
	D0170	\$1,140.57	8%
Dental Films	D0200	\$24.52	2%
	D0250	\$88.15	0%
	D0270	\$45.25	0%
	D0274	\$1,487.51	7%
	D0280	\$1,738.37	8%
Adult Cleaning	D1100	\$2,387.78	16%
<b>Sum of Preventive Services</b>			
Amalgam fillings	D2100	\$78.55	0%
	D2150	\$117.34	1%
	D2155	\$124.66	1%
Resin fillings	D2331	\$171.77	1%
	D2332	\$428.08	2%
	D2335	\$423.37	2%
Resin Crowns	D2391	\$376.57	2%
	D2392	\$584.17	3%
	D2393	\$344.18	2%
Tooth extraction & Removals	D7140	\$2,501.81	11%
	D7210	\$1,111.35	5%
<b>Sum of Comprehensive Services:</b>		<b>\$8,285.40</b>	<b>27%</b>
<b>Claims for Dental-related ER visits</b>			
Toothache	K0889	\$1,444.63	6%
Periapical abscess	K047	\$624.00	3%
Dental caries	K029	\$910.34	4%
Cracked tooth	K0381	\$247.37	1%
Reversible pulpitis	K0401	\$374.32	2%
Acute gingivitis	K0500	\$292.61	1%
Disorder of tooth	K089	\$42.88	0%
<b>Sum of Dental-related ER visits</b>		<b>\$5,936.15</b>	<b>17%</b>
<b>Total AMT PAID</b>		<b>\$22,783.31</b>	

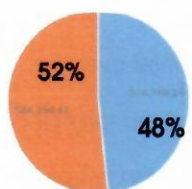


# Comparison

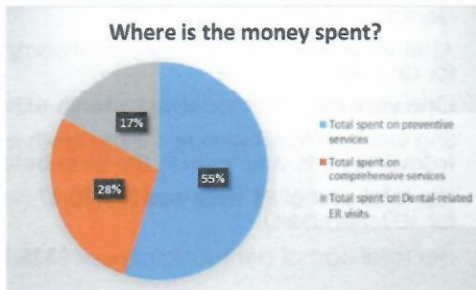
1786 Adult Members in 1 Month

100 Adult Members over 18 mos.

Amount Paid to Preventive Services vs. Comprehensive Services



Where is the money spent?





## How can we use this information?

- ▶ Extrapolate that we are **closer to our goals** than previously thought (55% of costs spent on preventive services vs 48%)
- ▶ There is even more room to **increase profit margin** (17% of costs are still coming from dental-related ER visits)
- ▶ The dental program is **meeting its intended goals**
  - ▶ The access to dental care for comprehensive visits is still offsetting the expense of using the ER
  - ▶ We can visualize this by taking a look at our highest utilizer of the ER of the 100 members...

## Who is the highest utilizer?

- ▶ Take for example, the **highest utilizer of dental-related ER visits**
- ▶ She is a 32 year old female who **visited the ER eleven times in 18 months** for dental-related issues
- ▶ After visiting the ER twice for similar complaints, she was seen in a dentist office for an exam and films
- ▶ One year later, she received a **tooth extraction** at the dentist
- ▶ She went on to receive **two more tooth extractions** at the dentist over the following year, and **went to the ER in between** those services
- ▶ Her **total cost of ER visits was \$1,490.87** (which is almost half of the total ER costs for 100 members)
- ▶ Her total cost of dental claims was **\$335.13** (which is still under \$500 max)



## Highest Utilizer

Sum of Total AMT paid

Timeline of Dental & ER visits for One High Utilizer Member



Date Service ▾

## What can we gain from patient X?

- ▶ We don't know why she **waited a year to have a dental extraction**:
  - ▶ **Fear** of getting tooth extraction
  - ▶ **Long wait** to get in with the dentist?
- ▶ She developed **post-procedural pain and an abscess** in between extractions
  - ▶ Did she **receive quality care** at this provider (tooth not fully extracted)? Missed diagnosis?
  - ▶ Was she **non-compliant** with post-procedural care/instructions?
  - ▶ **Low threshold for pain**?
  - ▶ Limited amount of/**Inadequate** pain medicine due to regulations
  - ▶ Possible **misuse** of pain medication
- ▶ **Bottom line: even in her case, the access to a dentist for these tooth extractions prevented her from going to the ER even more than she did**

## References

- ▶ "ER Utilizations Issues Flyer" on ADA.org :  
[http://www.ada.org/~media/ADA/Public%20Programs/Files/ER\\_Utilization\\_Issues\\_Flyer.ashx](http://www.ada.org/~media/ADA/Public%20Programs/Files/ER_Utilization_Issues_Flyer.ashx)
- ▶ Koppelman, Jane. "Millions of Medicaid Dollars Spent on Dental Emergencies," June 19, 2015. <https://www.pewtrusts.org/en/research-and-analysis/articles/2015/06/19/millions-of-medicaid-dollars-spent-on-dental-emergencies>
- ▶ ICD-10-CM Expert for Physicians and Hospitals, 2017 ed. AAPC, 2016.