



“Trend 101”

Purdue University MA/STAT 170

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Directory & Actuary III

September 30, 2010

- ❖ What is Trend?
- ❖ Types of Healthcare Claims Trend
- ❖ Trend Normalization



What is Trend?

What is Trend?

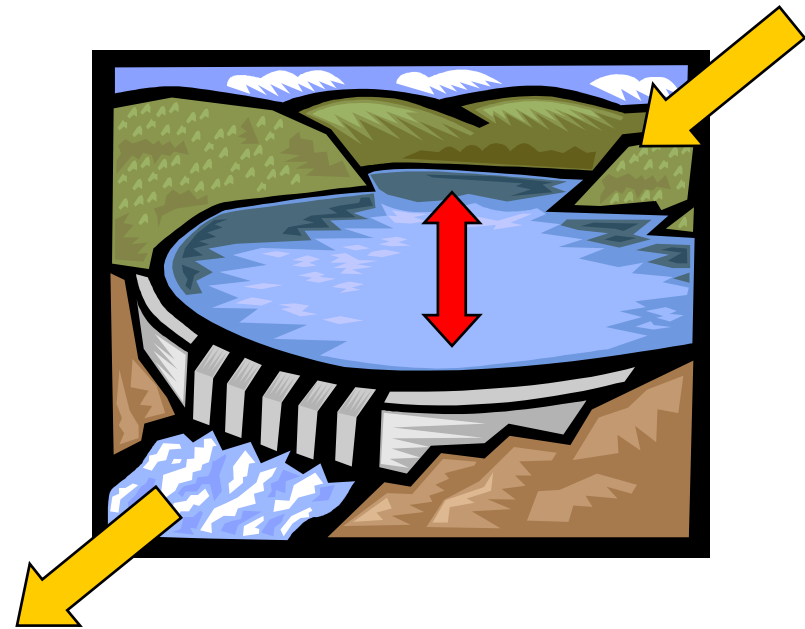
Trend is the percent change in a statistic from one period to another

- ❖ Measured between similar time periods
 - For example, 3Q2009 to 3Q2008 or calendar year 2009 to 2008
- ❖ Common periods
 - 1-month
 - 3-month
 - 12-month

What is Trend?

Trend is like a lake created by a dam across a river

- Water flows in from the river and out from the gates of the dam.
- The water level represents the trend level
- If the (water) flowing in is greater than the water flowing out, the trend rises
- If the (water) flowing in is less than the water flowing out, the trend recedes



Now substitute “claims” in place of (water).



Types of Healthcare Claims Trend

Types of Healthcare Claims Trend

Trend statistics measured in health insurance

- Per Member Per Month “PMPM” (example below)
- Unit cost
- Utilization: Admits or days for Inpatient (IP), visits for Outpatient (OP) & Professional (PR), and scripts for Rx

All statistics are measured for all types of service (IP, OP, PR and Rx)

PMPM Example:

Year	Month	Claims	Membersh	PMPM
1	1	\$ 1,500,000	6,000	\$ 250.00
1	2	\$ 1,100,000	6,030	\$ 182.42
1	3	\$ 1,850,000	6,060	\$ 305.28
1	4	\$ 1,400,000	6,090	\$ 229.89
1	5	\$ 1,500,000	6,120	\$ 245.10
1	6	\$ 1,800,000	6,151	\$ 292.64
1	7	\$ 1,350,000	6,182	\$ 218.38
1	8	\$ 1,900,000	6,213	\$ 305.81
1	9	\$ 1,600,000	6,244	\$ 256.25
1	10	\$ 1,800,000	6,275	\$ 286.85
1	11	\$ 2,100,000	6,306	\$ 333.02
1	12	\$ 1,900,000	6,338	\$ 299.78

1	Total	\$ 19,800,000	74,009	\$ 267.54
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2	Total	\$ 22,770,000	77,709	\$ 293.01
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Trend
9.5%

Claim Cost Basis:

- **Paid** trend is the change in WLP's total paid expenditures for health services rendered during a given time period (ie, change in claims expense PMPM paid by WLP over time; WLP's liability)
- **Cost of Care**, or "**allowed**" cost, trend is the change in the total of WLP's and its members' expenditures for health services rendered during a given time period (ie, WLP liability and member liability such as deductible or copay)

Reporting Basis:

- **Financial** - paid basis only; observed paid experience (not run rate) so has impacts related to prior periods
- **Book** - can be paid or allowed; actual (aka, "run rate") experience



Trend Normalization

What is "Normalized" CoC trend?

Objective: Estimate the underlying (normalized) CoC trend, the “pure” trend

Eliminate the noise created by:

- Age/gender changes
- Group mix changes – can be age/gender but also product shifts or geographical shifts, etc....
- Large claims impact
- Benefit changes such as significant shifts in deductible or copays or covered benefits

- Leveraging
 - all else equal (same copay), PAID claims expense will trend higher than cost of care
 - significant influence on pricing trend
- Benefit Change
 - changes in benefits can under/overstate trend
- Mix of Business
 - shifts in mix can under/overstate trend;

Trend Normalization – Leveraging

	Year 1 PMPM	Year 2 PMPM	PMPM Change	% Change
Allowed Amount	\$ 50.00	\$ 57.50	\$ 7.50	15.0%
Year 1 Member Copay	(\$12.50)	(\$12.50)		
Modeled Paid Amount	\$ 37.50	\$ 45.00	\$ 7.50	20.0%
Illustrated Leverage Impact				5.0%

Note: Pricing trend must cover or account for leveraging impact

Trend Normalization – Leveraging

	Year 1 PMPM	Year 2 PMPM	PMPM Change	% Change
Allowed Amount	\$ 50.00	\$ 57.50	\$ 7.50	15.0%
Year 1 Member Copay	(\$15.00)	(\$15.00)		
Modeled Paid Amount	\$ 35.00	\$ 42.50	\$ 7.50	21.4%
Illustrated Leverage Impact				6.4%

Note: the higher the copay, the greater the leveraging impact so migration to higher copays warrants higher pricing trends

Trend Normalization – Leveraging

	Year 1 PMPM	Year 2 PMPM	PMPM Change	% Change
Allowed Amount	\$ 50.00	\$ 57.50	\$ 7.50	15.0%
Year 1 Member Copay	(\$12.50)	(\$12.50)		
Modeled Paid Amount	\$ 37.50	\$ 45.00	\$ 7.50	20.0%
Additional Copay (buy-down)		(\$2.50)		
Net/Actual Paid Amount	\$ 37.50	\$42.50	\$ 5.00	13.3%
			Illustrated Leverage Impact	-1.7%

Note: benefit changes bias trend result so should exclude from pricing trend

Trend Normalization – Product Mix

HMO

	Clms	Mbrs	PMPM	Trend
2007	\$ 1,000,000	10,000	\$ 100.00	
2008	\$ 1,100,000	10,000	\$ 110.00	10.0%
2009	\$ 1,210,000	10,000	\$ 121.00	10.0%
2010	\$ 1,331,000	10,000	\$ 133.10	10.0%

PPO

	Clms	Mbrs	PMPM	Trend
2007	\$ 1,000,000	5,000	\$ 200.00	
2008	\$ 1,100,000	5,000	\$ 220.00	10.0%
2009	\$ 1,210,000	5,000	\$ 242.00	10.0%
2010	\$ 1,331,000	5,000	\$ 266.20	10.0%

Total

	Clms	Mbrs	PMPM	Trend
2007	\$ 2,000,000	15,000	\$ 133.33	
2008	\$ 2,200,000	15,000	\$ 146.67	10.0%
2009	\$ 2,420,000	15,000	\$ 161.33	10.0%
2010	\$ 2,662,000	15,000	\$ 177.47	10.0%

Trend Normalization – Product Mix

HMO

	Clms	Mbrs	PMPM	Trend
2007	\$ 1,000,000	10,000	\$ 100.00	
2008	\$ 1,210,000	11,000	\$ 110.00	10.0%
2009	\$ 1,464,100	12,100	\$ 121.00	10.0%
2010	\$ 1,771,561	13,310	\$ 133.10	10.0%

PPO

	Clms	Mbrs	PMPM	Trend
2007	\$ 1,000,000	5,000	\$ 200.00	
2008	\$ 1,035,000	4,500	\$ 230.00	15.0%
2009	\$ 1,071,225	4,050	\$ 264.50	15.0%
2010	\$ 1,108,718	3,645	\$ 304.18	15.0%

Total

	Clms	Mbrs	PMPM	Trend
2007	\$ 2,000,000	15,000	\$ 133.33	
2008	\$ 2,245,000	15,500	\$ 144.84	8.6%
2009	\$ 2,535,325	16,150	\$ 156.99	8.4%
2010	\$ 2,880,279	16,955	\$ 169.88	8.2%

Trend Normalization – Product Mix

Total - Actual Wt

	Clms	Mbrs	PMPM	Trend
2007	\$ 2,000,000	15,000	\$ 133.33	
2008	\$ 2,245,000	15,500	\$ 144.84	8.6%
2009	\$ 2,535,325	16,150	\$ 156.99	8.4%
2010	\$ 2,880,279	16,955	\$ 169.88	8.2%

Total - Static Wt

	Clms	Mbrs	PMPM	Trend
2007	\$ 2,060,000	16,955	\$ 121.50	
2008	\$ 2,302,450	16,955	\$ 135.80	11.8%
2009	\$ 2,574,613	16,955	\$ 151.85	11.8%
2010	\$ 2,880,279	16,955	\$ 169.88	11.9%

Projecting 2010 from 2009:

Actual Wt

HMO	\$ 1,742,766	13,310	\$ 130.94	
PPO	\$ 1,043,275	3,645	\$ 286.22	Error
TOTAL	\$ 2,786,041	16,955	\$ 164.32	-3.27%

Using 8.2% trend

Static Wt

HMO	\$ 1,801,715	13,310	\$ 135.37	
PPO	\$ 1,078,564	3,645	\$ 295.90	Error
TOTAL	\$ 2,880,279	16,955	\$ 169.88	0.00%

Using 11.9% trend

Trend Normalization – Product Mix

HMO

	Clms	Mbrs	PMPM	Trend
2007	\$ 1,000,000	10,000	\$ 100.00	
2008	\$ 1,210,000	11,000	\$ 110.00	10.0%
2009	\$ 1,464,100	12,100	\$ 121.00	10.0%
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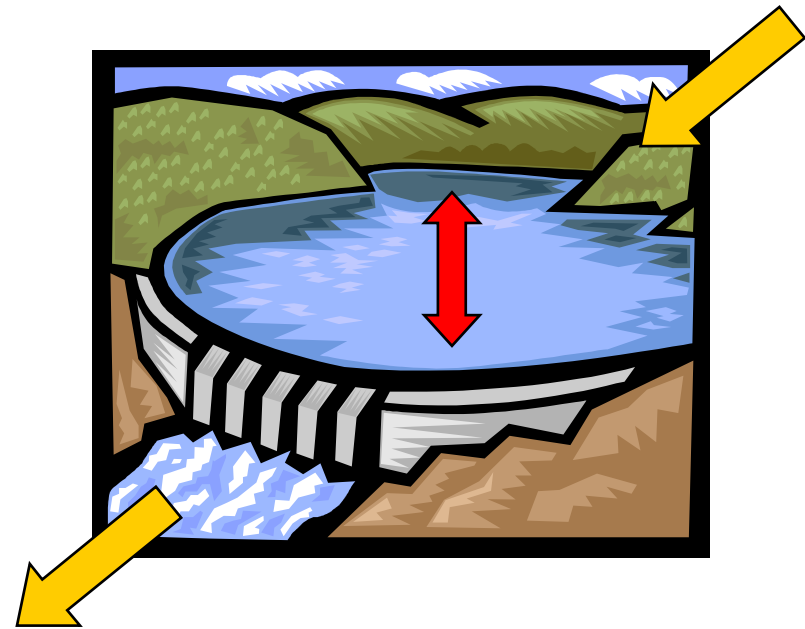
Static Wt

HMO	\$ 1,801,715	13,310	\$ 135.37	
PPO	\$ 1,078,564	3,645	\$ 295.90	Error
TOTAL	\$ 2,880,279	16,955	\$ 169.88	0.00%

Back to “Trend is Like a Lake”

Trend is like a lake created by a dam across a river

- Water flows in from the river and out from the gates of the dam.
- The water level represents the trend level
- If the (water) flowing in is greater than the water flowing out, the trend rises
- If the (water) flowing in is less than the water flowing out, the trend recedes



Now substitute any of the following in place of (water):

- Age
- Gender
- Morbidity
- Geography
- Product



Questions