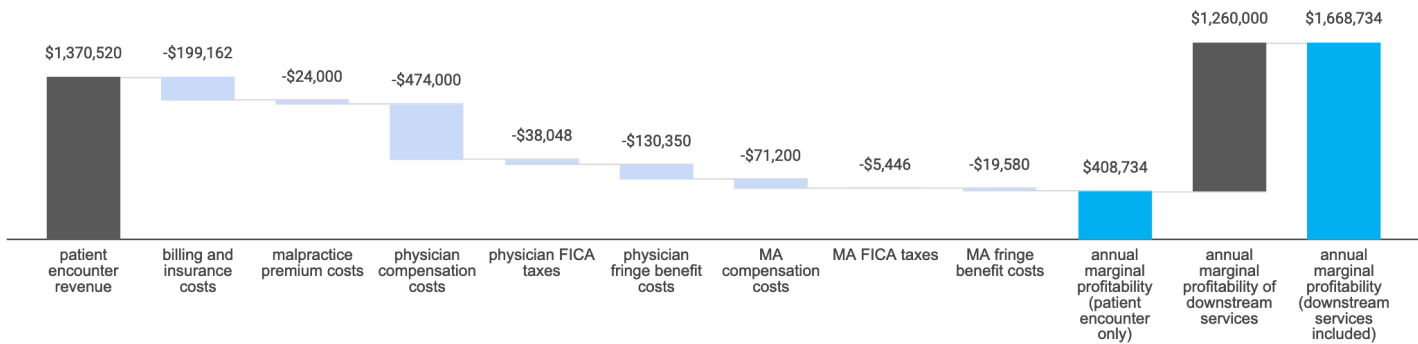


Apprentice Health Subscription Economic Value: Estimated Marginal Profitability of 32 Exam Room Clinic

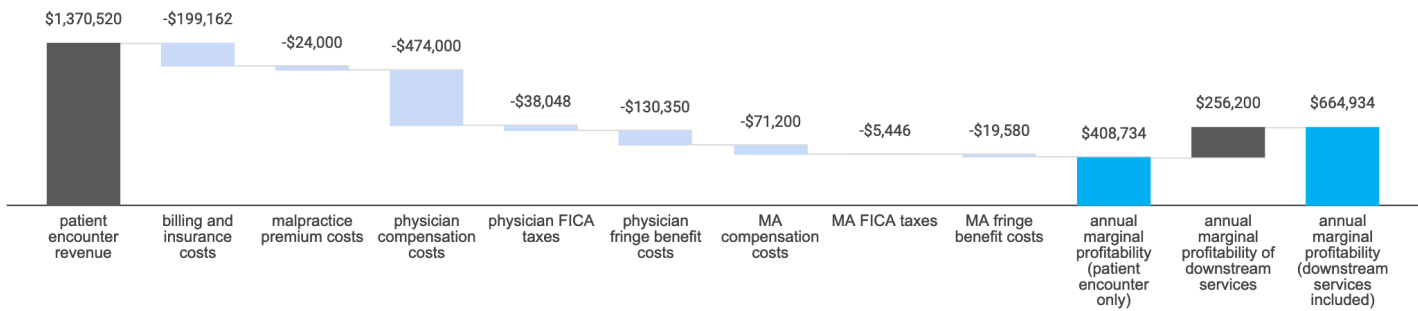
Ref.	Apprentice Health Subscription ROI @ 10% Higher Room Capacity	Expected downstream services incremental contribution margin = 30%	Conservative downstream services incremental contribution margin = 6.1%	Expected downstream services incremental contribution margin = 30%
		FFS	FFS	PMPY
(a)	percentage increase in clinic capacity	10%	10%	10%
(b)	number of extra exam rooms unlocked (assuming 32 exam rooms)	3.2	3.2	3.2
(c)	number of new physicians that can fit into extra exam rooms unlocked	2	2	2
(d)	number of MAs needed to support added PCPs	2	2	2
(e)	annual incremental patient encounter revenue of added PCPs	\$1,370,520	\$1,370,520	\$0
(f)	annual incremental cost of added PCPs and MAs	\$961,786	\$961,786	\$961,786
(g)	annual marginal profitability of added PCPs and MAs (patient encounter only)	\$408,734	\$408,734	-\$961,786
(h)	annual incremental downstream services revenue of added PCPs	\$4,200,000	\$4,200,000	-
(i)	annual incremental net PMPY revenue of added PCPs	-	-	\$12,000,000
(j)	annual incremental downstream services contribution margin	30%	6.10%	30%
(k)	annual marginal profitability of added PCPs and MAs (downstream services included)	\$1,668,734	\$664,934	\$2,638,214
(l)	apprentice health subscription cost	Quote on Request	Quote on Request	Quote on Request

Ref.	Apprentice Health Subscription ROI @ 20% Higher Room Capacity	Expected downstream services incremental contribution margin = 30%	Conservative downstream services incremental contribution margin = 6.1%	Expected downstream services incremental contribution margin = 30%
		FFS	FFS	PMPY
(a)	percentage increase in clinic capacity	20%	20%	20%
(b)	number of extra exam rooms unlocked (assuming 32 exam rooms)	6.4	6.4	6.4
(c)	number of new physicians that can fit into extra exam rooms unlocked	4	4	4
(d)	number of MAs needed to support added PCPs	4	4	4
(e)	annual incremental patient encounter revenue of added PCPs	\$2,741,040	\$2,741,040	\$0
(f)	annual incremental cost of added PCPs and MAs	\$1,923,572	\$1,923,572	\$1,923,572
(g)	annual marginal profitability of added PCPs and MAs	\$817,468	\$817,468	-\$1,923,572
(h)	annual incremental downstream services revenue of added PCPs	\$8,400,000	\$8,400,000	-
(i)	annual incremental net PMPY revenue of added PCPs	-	-	\$24,000,000
(j)	annual incremental downstream services contribution margin	30%	6.10%	30%
(k)	annual marginal profitability of added PCPs and MAs (downstream services included)	\$3,337,468	\$1,329,868	\$5,276,428
(l)	apprentice health subscription cost	Quote on Request	Quote on Request	Quote on Request

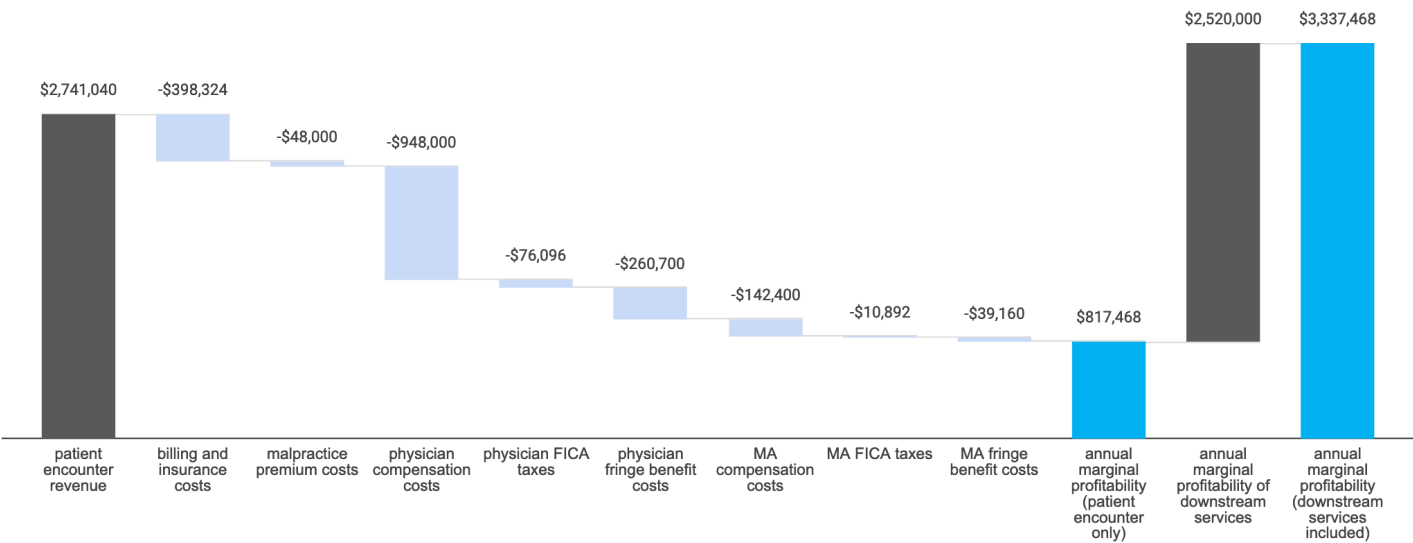
Annual Marginal Profitability of Added Physicians @ 10% Higher Room Capacity, Expected Downstream Services Contribution Margin



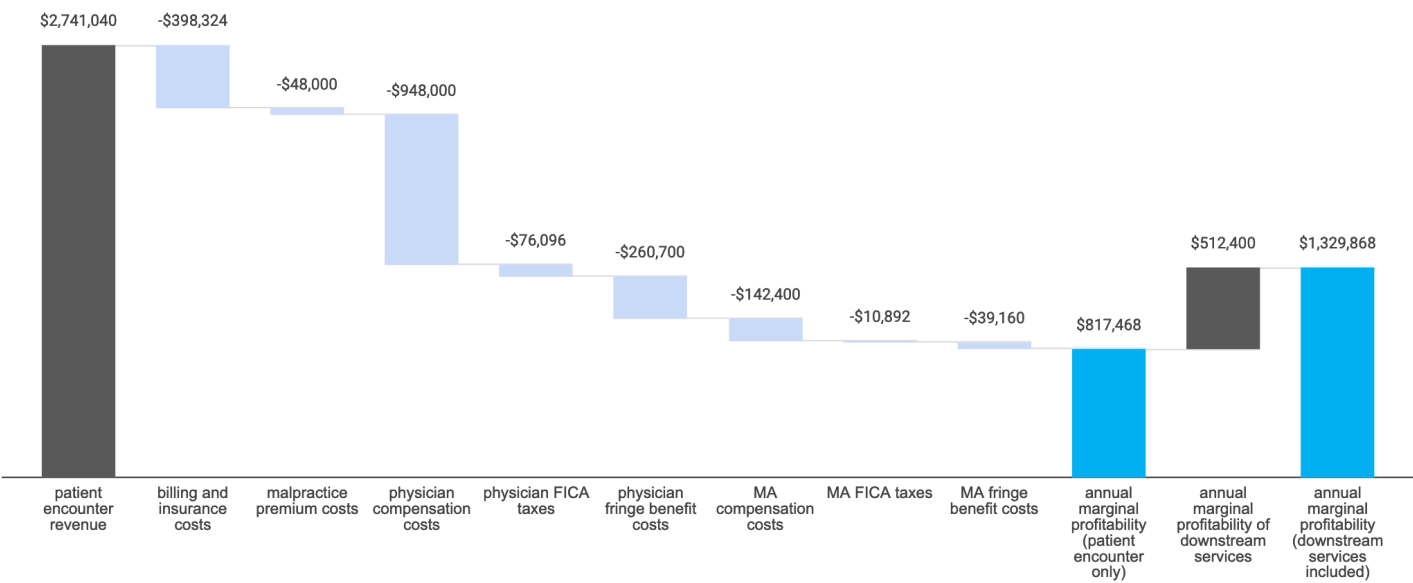
Annual Marginal Profitability of Added Physicians @ 10% Higher Room Capacity, Conservative Downstream Services Contribution Margin



Annual Marginal Profitability of Added Physicians @ 20% Higher Room Capacity, Expected Downstream Services Contribution Margin



Annual Marginal Profitability of Added Physicians @ 20% Higher Room Capacity, Conservative Downstream Services Contribution Margin

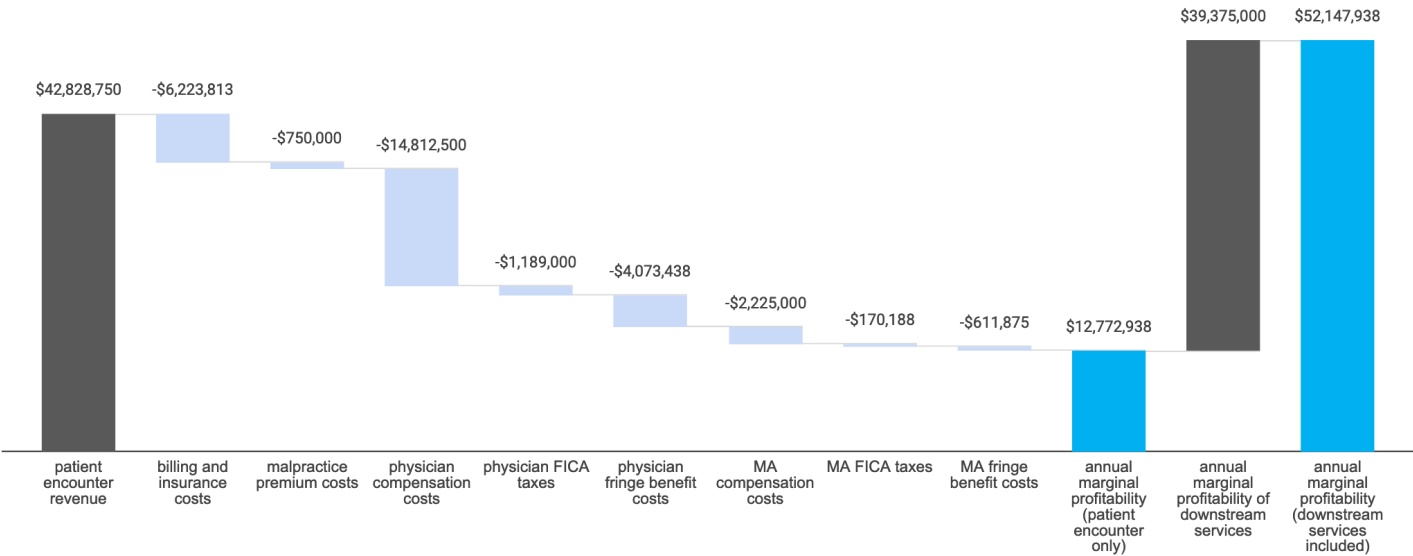


Apprentice Health Subscription Economic Value: Estimated Marginal Profitability of 1,000 Exam Room Health System Medical Group

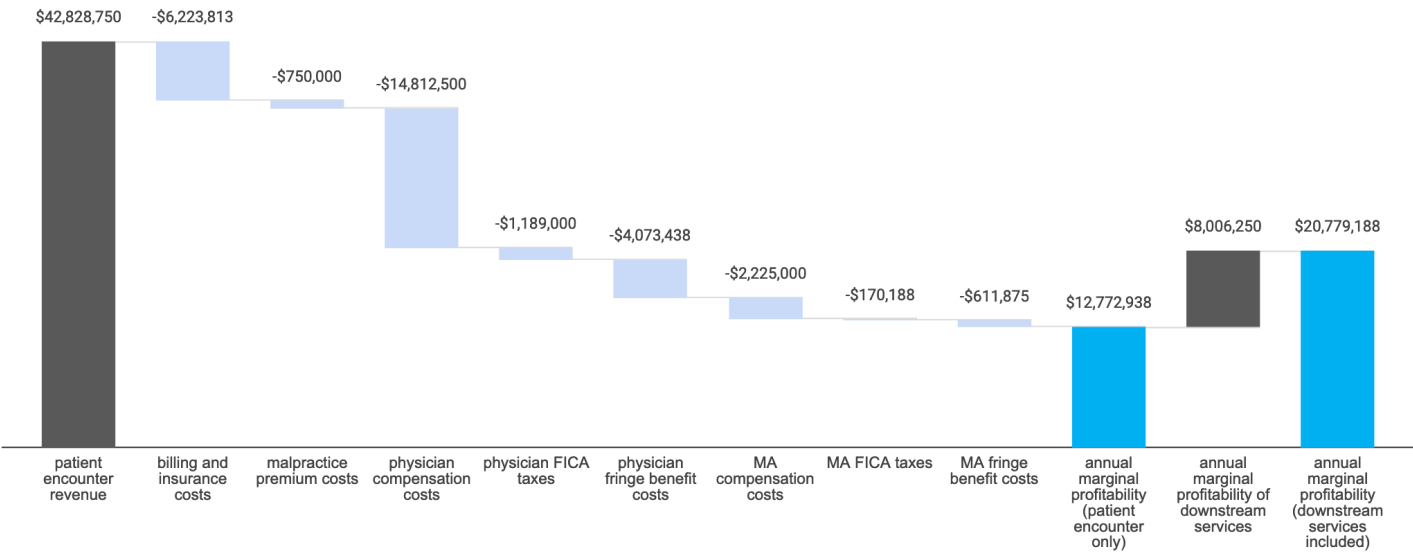
Ref.	Apprentice Health Subscription ROI @ 10% Higher Room Capacity	Expected downstream services incremental contribution margin = 30%	Conservative downstream services incremental contribution margin = 6.1%	Expected downstream services incremental contribution margin = 30%
		FFS	FFS	PMPY
(1)	percentage increase in clinic capacity	10%	10%	10%
(2)	number of extra exam rooms unlocked (assuming 1000 exam rooms)	100	100	100
(3)	number of new physicians that can fit into extra exam rooms unlocked	63	63	63
(4)	number of MAs needed to support added PCPs	63	63	63
(5)	annual incremental patient encounter revenue of added PCPs	\$42,828,750	\$42,828,750	\$0
(6)	annual incremental cost of added PCPs and MAs	\$30,055,813	\$30,055,813	\$30,055,813
(7)	annual marginal profitability of added PCPs and MAs (patient encounter only)	\$12,772,938	\$12,772,938	-\$30,055,813
(8)	annual incremental downstream services revenue of added PCPs	\$131,250,000	\$131,250,000	-
(9)	annual incremental net PMPY revenue of added PCPs	-	-	\$375,000,000
(10)	annual incremental downstream services contribution margin	30%	6.10%	30%
(11)	annual marginal profitability of added PCPs and MAs (downstream services included)	\$52,147,938	\$20,779,188	\$82,444,188
(12)	apprentice health subscription cost	Quote on Request	Quote on Request	Quote on Request

Ref.	Apprentice Health Subscription ROI @ 20% Higher Room Capacity	FFS	FFS	PMPY
(1)	percentage increase in clinic capacity	20%	20%	20%
(2)	number of extra exam rooms unlocked (assuming 1000 exam rooms)	200	200	200
(3)	number of new physicians that can fit into extra exam rooms unlocked	125	125	125
(4)	number of MAs needed to support added PCPs	125	125	125
(5)	annual incremental patient encounter revenue of added PCPs	\$85,657,500	\$85,657,500	\$0
(6)	annual incremental cost of added PCPs and MAs	\$54,289,952	\$60,111,750	\$60,111,750
(7)	annual marginal profitability of added PCPs and MAs	\$25,545,750	\$25,545,750	-\$60,111,750
(8)	annual incremental downstream services revenue of added PCPs	\$262,500,000	\$262,500,000	-
(9)	annual incremental net PMPY revenue of added PCPs	-	-	\$750,000,000
(10)	annual incremental downstream services contribution margin	30%	6.10%	30%
(11)	annual marginal profitability of added PCPs and MAs (downstream services included)	\$104,295,750	\$41,558,250	\$164,888,250
(12)	apprentice health subscription cost	Quote on Request	Quote on Request	Quote on Request

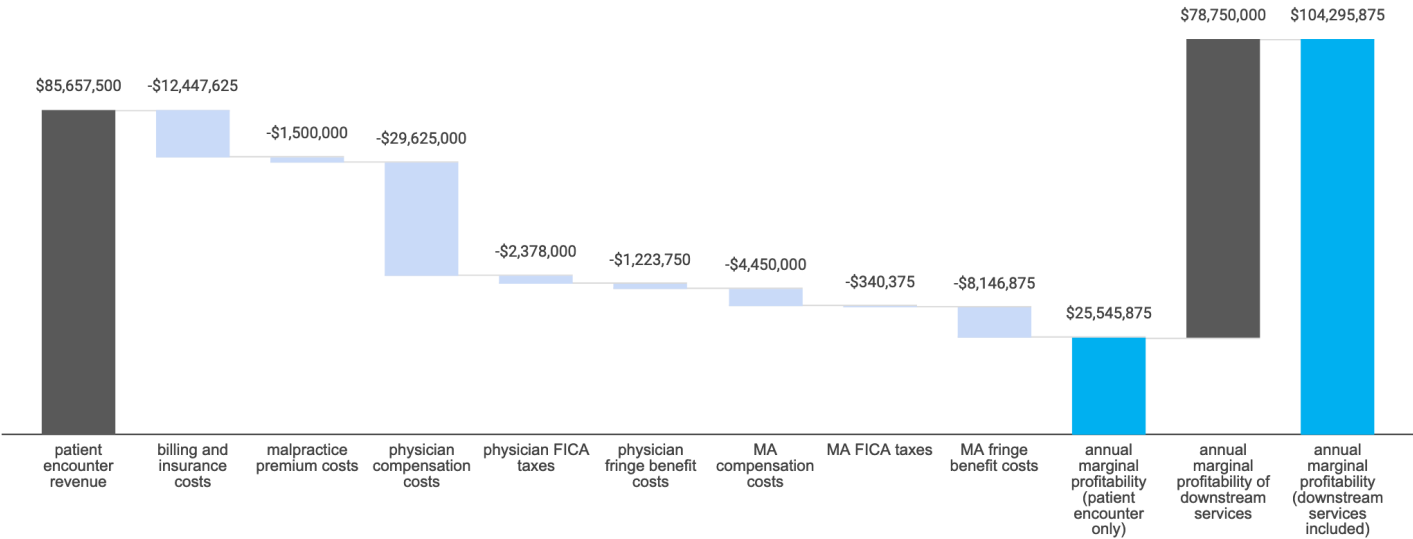
Annual Marginal Profitability of Added Physicians @ 10% Higher Room Capacity, Expected Downstream Services Contribution Margin



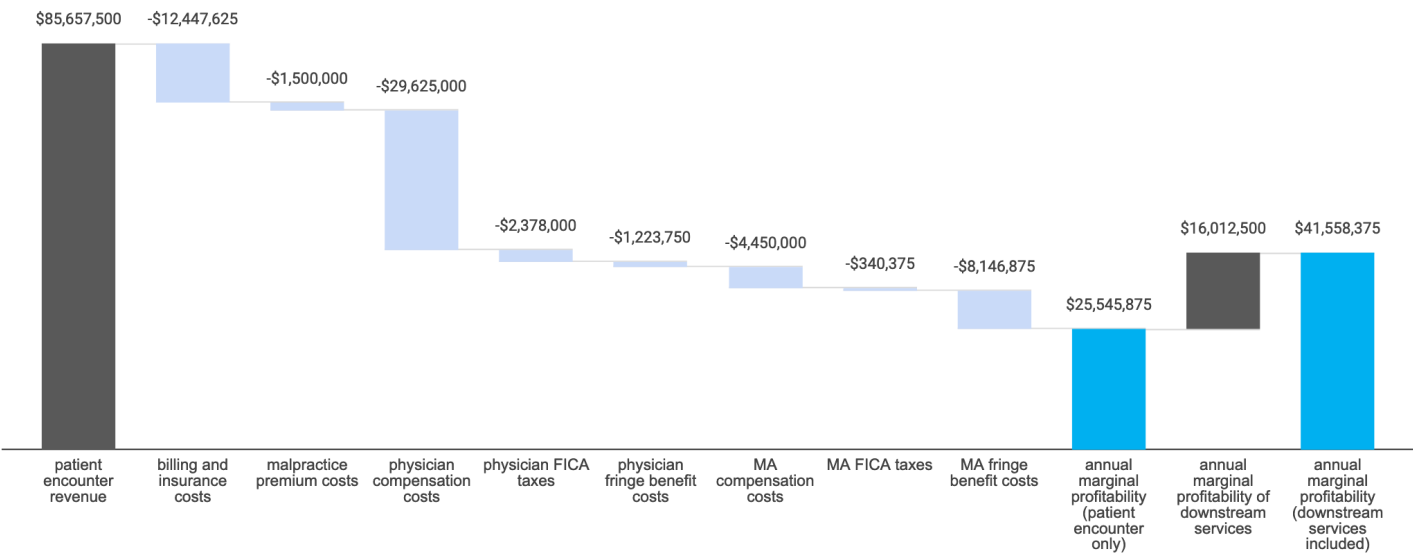
Annual Marginal Profitability of Added Physicians @ 10% Higher Room Capacity, Conservative Downstream Services Contribution Margin



Annual Marginal Profitability of Added Physicians @ 20% Higher Room Capacity, Expected Downstream Services Contribution Margin



Annual Marginal Profitability of Added Physicians @ 20% Higher Room Capacity, Conservative Downstream Services Contribution Margin



Apprentice Health Subscription Economic Value: Revenue and Cost Assumptions

Ref.	Revenue Assumptions	Expected downstream services incremental contribution margin = 30%	Conservative downstream services incremental contribution margin = 6.1%	Expected downstream services incremental contribution margin = 30%
		FFS	FFS	PMPY
(a)	average reimbursement rate per patient visit	\$141	\$141	-
(b)	average annual patient visit volume per PCP	4,860	4,860	-
(c)	annual patient encounter revenue per PCP	\$685,260	\$685,260	-
(d)	annual downstream patient services revenue per PCP	\$2,100,000	\$2,100,000	-
(e)	annual incremental contribution margin of downstream services per PCP	30.00%	6.10%	-
(f)	annual marginal profitability of downstream services per PCP	\$630,000	\$128,100	-

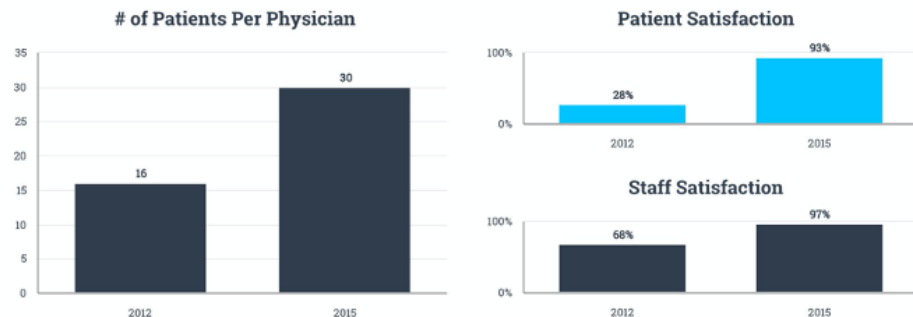
Ref.	Revenue Assumptions	FFS	FFS	PMPY
(g)	patient panel size	-	-	2,000
(h)	per member per year (PMPY) revenue per PCP	-	-	\$5,000
(i)	annual gross PMPY revenue per PCP	-	-	\$10,000,000
(j)	annual net PMPY revenue per PCP	-	-	\$6,000,000
(k)	annual incremental contribution margin of patient services per PCP (downstream services included)	-	-	30.00%
(l)	annual marginal profitability of patient services per PCP (downstream services included)	-	-	\$1,800,000

Ref.	Cost Assumptions	FFS	FFS	PMPY
(m)	billing and insurance-related administrative costs per encounter	\$20.49	\$20.49	\$20.49
(n)	annual billing and insurance-related administrative costs per PCP	\$99,581	\$99,581	\$99,581
(o)	annual malpractice premium cost per PCP	\$12,000	\$12,000	\$12,000
(p)	annual compensation per PCP	\$237,000	\$237,000	\$237,000
(q)	annual FICA contribution per PCP	\$19,024	\$19,024	\$19,024
(r)	annual fringe benefit cost per PCP	\$65,175	\$65,175	\$65,175
(s)	annual direct labor cost per PCP	\$432,780	\$432,780	\$432,780
(t)	annual compensation per MA	\$35,600	\$35,600	\$35,600
(u)	annual fringe benefit cost per MA	\$9,790	\$9,790	\$9,790
(v)	annual FICA contribution per MA	\$2,723	\$2,723	\$2,723
(w)	annual direct labor cost per MA	\$48,113	\$48,113	\$48,113
(x)	apprentice health subscription cost	Quote on Request	Quote on Request	Quote on Request

Apprentice Health Economic Value: Industry Evidence & Case Study Results

Clinic Productivity & Satisfaction Scores

Pre (2012) vs. Post (2015) RTLS Intervention



Using RTLS Data to Increase Ambulatory Care Capacity. HIMSS19. Session 53, February 12, 2019. Rodney L. Haas, VP Operations Excellence. University of Minnesota Physicians.

Validation of Extra Capacity Per Clinic

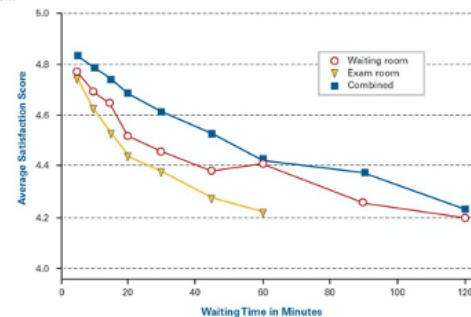
Dana-Farber Cancer Institute (DFCI)

	Patients Per Day (std)	Patient Wait Time to Exam Room (min)
Baseline Sept-Nov 2013	109 (30.2)	15.4 (19.2)
Post Intervention Feb-Apr 2014	122 (30.1)	13.5 (17.5)
P-Value	0.03	<0.0001

Using real time locating systems (RTLS) to redesign room allocation in an ambulatory cancer care setting. Beth Overmoyer, Sarah Kadish, Courtney Haskett, Kendall Sanderson, Jim Benneyan, Christine Reilly, Lillian Vitale Pedulla, Linda Brown, Kristen Camuso, and Craig A. Bunnell. *Journal of Clinical Oncology* 2014 32:30_suppl, 157-157

Patient Wait Times and Satisfaction Scores

Figure 1. The Relationships Between Waiting Times and Average Satisfaction Scores Across All 13 Study Questions



Bleustein C, Rothschild DB, Valen A, Valatis E, Schweitzer L, Jones R. Wait times, patient satisfaction scores, and the perception of care. *Am J Manag Care.* 2014;20(5):393-400.

Apprentice Health Case Studies

Vanderbilt Health

	Wait Time Reduction	Capacity Increase
Vanderbilt Health	40%	10%

Apprentice Health Subscription Economic Value: Calculations and Citations

Ref.	Revenue and Cost Assumptions	Calculation	Citation/Additional Information
(a)	average reimbursement rate per patient visit		the average reimbursement rate for a single primary care encounter in an academic medical center as found in Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA. Administrative Costs Associated With Physician Billing and Insurance-Related Activities at an Academic Health Care System. JAMA. 2018;319(7):691–697. doi:10.1001/jama.2017.1914
(b)	average annual patient visit volume per PCP		the average annual patient visit volume for a single primary care physician in an academic medical center practice as found in Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA. Administrative Costs Associated With Physician Billing and Insurance-Related Activities at an Academic Health Care System. JAMA. 2018;319(7):691–697. doi:10.1001/jama.2017.19148
(c)	annual patient encounter revenue per PCP		excludes annual downstream services revenue generated per physician.
(d)	annual downstream patient services revenue per PCP		annual downstream services revenue generated per primary care physician as found in Merritt Hawkins 2019 Physician Inpatient/Outpatient Revenue Survey.
(e)	annual incremental contribution margin of downstream services per PCP		the expected downstream services incremental contribution margin is an estimated 30%. the conservative downstream services incremental contribution margin is an estimated 6.1%, or the average operating margin for all-payer hospitals as found in Figure 3-5 of Hospital Inpatient and Outpatient Services. MedPac. March 2019.
(f)	annual marginal profitability of downstream services per PCP	(e)*(f)	
(g)	patient panel size		the estimated PCP patient panel size
(h)	per member per year (PMPY) revenue per PCP		the estimated PMPY payment rate for PCPs
(i)	annual gross PMPY revenue per PCP	(g)*(h)	
(j)	annual net PMPY revenue per PCP	(i)*60%	60% of revenue resulting from an inability to collect payment of charges.
(k)	annual incremental contribution margin of patient services per PCP		the expected downstream services contribution margin as a percentage of net revenue.
(l)	annual marginal profitability of patient services per PCP (downstream services included)	(k)*(j)	
(m)	billing and insurance-related administrative costs per encounter		the estimated professional billing costs per patient encounter for primary care physicians in an academic medical center as found in Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA. Administrative Costs Associated With Physician Billing and Insurance-Related Activities at an Academic Health Care System. JAMA. 2018;319(7):691–697. doi:10.1001/jama.2017.1914
(n)	annual billing and insurance-related administrative costs per PCP	(b)*(m)	
(o)	annual malpractice premium cost per PCP		the estimated annual malpractice insurance premium cost per primary care physician as found in Medscape 2019 Physician Compensation Report.
(p)	annual compensation per PCP		the estimated annual compensation of primary care physicians (which includes salary, bonus, and profit-sharing contributions) as found in Medscape 2019 Physician Compensation Report.

(q)	annual FICA contribution per PCP	$[(p)*6.2\%]+[(137,700*1.45\%)+[99,300*(0.9\%+1.45\%)]]$	social security = 6.2% of gross wages. Medicare = 1.45% of gross wages up to a wage limit of \$137,700. Additional Medicare tax equal to 0.9% of wage greater than \$137,700.
(r)	annual fringe benefit cost per PCP	$(p)*27.5\%$	the approximate fringe benefit rate as a percentage of annual compensation as found in Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA. Administrative Costs Associated With Physician Billing and Insurance-Related Activities at an Academic Health Care System. JAMA. 2018;319(7):691–697. doi:10.1001/jama.2017.19148
(s)	annual direct labor cost per PCP	$(n)+(o)+(p)+(q)+(r)$	
(t)	annual compensation per MA		the approximate annual compensation of medical assistants. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Medical Assistants.
(u)	annual fringe benefit cost per MA	$(t)*27.5\%$	the approximate fringe benefit rate as a percentage of annual compensation as found in Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA. Administrative Costs Associated With Physician Billing and Insurance-Related Activities at an Academic Health Care System. JAMA. 2018;319(7):691–697. doi:10.1001/jama.2017.19148
(v)	annual FICA contribution per MA	$[(t)*6.2\%]+[(n)*1.45\%]$	social security = 6.2% of gross wages. Medicare = 1.45% of gross wages up to a wage limit of \$137,700. Additional Medicare tax equal to 0.9% of wage greater than \$137,700.
(w)	annual direct labor cost per MA	$(t)+(u)+(v)$	
(x)	apprentice health subscription cost	Quote on Request	
Ref.	Apprentice Health Subscription ROI @ Higher Capacity	Calculation	Citation/Additional Information
(1)	percentage increase in clinic capacity		the increase in capacity achieved with Apprentice Health.
(2)	number of extra exam rooms unlocked	$(1)*(\# \text{ of exam rooms})$	the percentage increase in clinic capacity multiplied by the total number of exam rooms.
(3)	number of new physicians that can fit into extra exam rooms unlocked	$(2)/1.6$	assuming the number of exam rooms assigned per PCP = 1.6.
(4)	number of MAs needed to support added PCPs	$(2)/1.0$	assuming the number of medical assistants per PCP = 1.
(5)	annual incremental patient encounter revenue of added PCPs	$(3)*(c)$	the annual patient encounter revenue multiplied by the number of added PCPs.
(6)	annual incremental cost of added PCPs and MAs	$[(3)*(s)]+(4)*(w)]$	the total annual direct labor cost per PCP and MA multiplied by the number of added PCPs.
(7)	annual marginal profitability of added PCPs and MAs	$(5)-(6)$	
(8)	annual incremental downstream services revenue of added PCPs	$(3)*(d)$	the annual gross downstream services revenue multiplied by the number of added PCPs.
(9)	annual incremental net PMPY revenue of added PCPs	$(3)*(j)$	the annual gross PMPY revenue multiplied by the number of added PCPs.
(10)	annual incremental downstream services contribution margin	(e)	
(11)	annual marginal profitability of added PCPs and MAs (downstream services included)	$(8)*(e); (9)*(e)$	the annual incremental downstream services contribution margin multiplied by the incremental downstream services revenue of added PCPs (8); the annual incremental downstream services contribution margin multiplied by the net PMPY revenue of added PCPs.
(12)	apprentice health subscription cost	Quote on Request	

