

Spreadsheets: Your Data Fortress of Solitude

- 1. **Beyond the Basics:** Spreadsheets are your secret weapon, transforming ordinary data into extraordinary insights.
- Unleash Your Inner Analyst: Track patient trends faster than a speeding bullet, forecast outcomes with X-ray vision, and make decisions worthy of the Justice League.
- 3. **Automate the Mundane:** Let spreadsheets handle repetitive tasks, freeing you to fight the good fight of patient care.
- 4. **Data Mastery:** Gain the confidence to interpret data like a seasoned superhero, making informed decisions that save the day.





Streamlining Good Faith Estimates: Your Spreadsheet Utility Belt

- Automate: Replace manual forms with a powerful spreadsheet tool.
- **Simplify:** Use dropdown menus to select visit types faster than changing into a phone booth.
- Calculate: Instantly generate CPT codes, charges, and discounts with the precision of a Kryptonian.
- Integrate: Seamlessly incorporate patient data like a master detective.
- Benefit: Save time, reduce errors, and focus on what matters most: your patients.







Building Your Fortress: Spreadsheet Design 101



- Garbage In, Garbage Out: A well-structured spreadsheet is your foundation for success.
- Formulas: Your Superpowers: Formulas transform data into actionable intelligence.
- **Key Formulas:** VLOOKUP, SUMIF, INDEX-MATCH your trusty sidekicks.
- Results: Intuitive spreadsheets, efficient workflows, and data-driven decisions that would make even Batman proud





Breaking Down the Formula - SUM and IF

1. **SUM**:

- Purpose: Adds all the numbers in a range of cells.
- Syntax: SUM(range)
- Example: =SUM(C15:C21) adds all the values in cells C15 to C21.

2. **IF**:

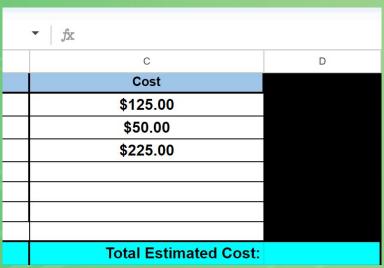
- Purpose: Returns one value if a condition is true and another value if it's false.
- Syntax: IF(condition, value_if_true, value_if_false)
- Example: =IF(SUM(C15:C21)>400,"Over Maximum Amount",SUM(C15:C21)) checks if the sum of C15 to C21 is greater than \$400 and returns "Over Maximum Amount" if true, otherwise returns the sum.





Example in Action

Without formulas, the manual process is evident. However, with some knowledge and nesting, these tasks can be automated.



This formula automates the process and alerts the staff if the visit exceeds the \$400 limit.



▼ f _X =1	IF(SUM(<mark>C15:C21</mark>)>400,"Over Maxi	mum Amount",SUM(C1	5:C21))
•	С	D	Е
	Cost		
	\$125.00		
	\$50.00		
	\$225.00		
	\$10.00		
	Total Estimated Cost	: Over Maximum	Amount





Applying the Formula - Step by step

1. Select the Cell

Instruction: Choose the cell where you want to apply the formula.

Example: Select cell D22.

3. Adjust the Range

Instruction: Ensure the cell references in the formula match your data range.

Example: Verify that the formula references the correct range C15

2. Enter the Formula

Instruction: Type or paste the formula into the selected cell.

Example: Enter = IF(SUM(C15:C21)>400, "Over Maximum Amount", SUM(C15:C21)) into cell D22

4. Copy the Formula

Instruction: If you need to apply the formula to other cells, use the fill handle to copy it.

Example: In this case, the formula is only applied to cell D21, so copying is not necessary.





Dynamic Duos: VLOOKUP vs. INDEX-MATCH

VLOOKUP:

 The reliable sidekick, finding values in the leftmost column and returning corresponding data.

INDEX-MATCH:

 The versatile hero, searching in any direction and handling complex missions.

Comparison Table

Feature	VLOOKUP	INDEX-MATCH
Lookup Direction	Left to right only	Any direction (left, right, up, down)
Column Insertion	Can break the formula	More flexible with column changes
Multiple Criteria	Limited (requires workarounds)	More straightforward
Ease of Use	Simpler syntax for basic lookups	Steeper learning curve
Performance	Generally faster for small datasets	Better performance with large datasets
Flexibility	Less flexible, only looks right of the lookup column	Highly flexible, can lookup in any direction
Maintenance	Needs manual updating if structure changes	Adapts better to changes in data structure
Error Handling	Limited error handling	Better error handling and control

Key Takeaways:

- VLOOKUP is your go-to for quick lookups.
- INDEX-MATCH is your secret weapon for complex data challenges.
- VLOOKUP is easier to learn and use for basic tasks.
- INDEX-MATCH offers more control and flexibility, making it suitable for advanced users and complex scenarios.





Breaking Down the Formula - INDEX and MATCH

1. INDEX:

- **Purpose**: Returns the value of a cell in a specified row and column within a range.
- Syntax: INDEX(range, row_num, [column_num])
- Example: =INDEX('Patient Demo'!A:A, 2) returns the value from the 2nd row of column A in the 'Patient Demo' sheet.

2. MATCH:

- Purpose: Searches for a specified value in a range and returns the relative position of that value.
- Syntax: MATCH(lookup_value, lookup_array, [match_type])
- **Example**: =MATCH(D4, 'Patient Demo'!B:B, 0) returns the position of the value in D4 within column B of the 'Patient Demo' sheet.

3. Combining INDEX and MATCH:

- **Purpose**: To perform a lookup that searches for a value in one column and returns a value from another column in the same row.
- Example: =INDEX('Patient Demo'!A:A, MATCH(D4, 'Patient Demo'!B:B, 0)) returns the patient name from column A where the PCC# in D4 matches column B.

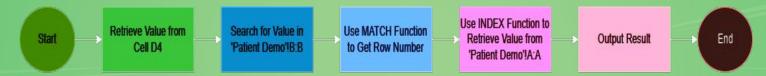




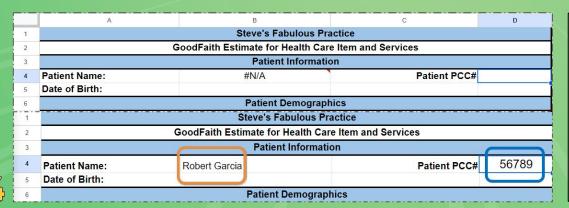
Breaking Down the Formula: INDEX and MATCH

Disclaimer: All patient names and demographic information used in this [presentation/document/study] are fictitious and generated randomly. Any resemblance to real individuals is purely coincidental.

=INDEX('Patient Demo'!A:A, MATCH(D4, 'Patient Demo'!B:B, 0))
(This formula lives in cell B4 in the example below and D4 is the value being matched)



Without PCC# to be matched the formula leaves as #N/A (Top Middle of Image) shows Patient Name matching off PCC # (Bottom Image)



Legend

(Bottom Left Image)

- Blue: Input values
- Orange: Output

Note the #N/A is present because nothing is being matched and this can be hidden





Example data structure

Goal: Extract those elusive five-digit "Secondary Visit Category" codes

Example Formula: Excel & Sheets

=ARRAYFORMULA(IF(A4:A="", "", REGEXEXTRACT(A4:A, "\b\d{5}\b")))

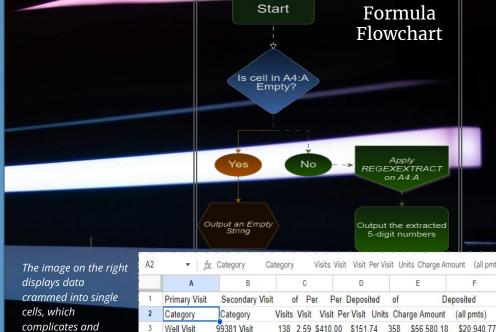
This formula does the following:

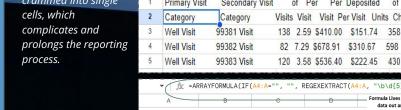
- ARRAYFORMULA: Ensures the formula is applied to each cell in the range A4
 - IF(A4:A="", "", ...): Checks if each cell in the range A4 is empty. If it is, it returns an empty string. If not, it proceeds to the next function.
 - REGEXEXTRACT (A4:A, "\b\d{5}\b"): Extracts a 5-digit number from the string in each cell of the range A4

Edge Case Consideration

- Empty Cells: Ensure that empty cells are handled gracefully without causing errors.
- Multiple Matches: If a cell contains multiple patterns that match the regex, decide if you need to extract the first match, all matches, or handle it differently.

No Matches: Define what happens when no pattern is found in a cell. The current formula returns an empty string in such cases.





99395 Visit

Well Visit

This image shows our

formula in action

pulling the data out

and making usable.

\$25 474 77

99381

This formula will extract the requested data and output it to Well Visit its own cell, making the data usable for our spreadsheet tool. Well Visit 99383 Visit Well Visit 99384 Visit Well Visit 99391 Visit Well Visit 99392 Visit Well Visit 99393 Visit 99394 Visit Well Visit \$79,120,51

36 3.86 \$527.64 \$218.62

Breaking Down the Formula - FILTER, ARRAY, and IFERROR

1. FILTER:

- **Purpose**: Filters a range of data based on a condition.
- Syntax: FILTER(range, condition1, [condition2, ...])
- **Example**: =FILTER('Visit Reason + CPT'!J:J, 'Visit Reason + CPT'!G:G = B11) returns the values in column J where column G matches B11.

IFERROR:

- Purpose: Returns a value if an expression is an error, and the value of the expression itself otherwise.
- Syntax: IFERROR(value, [value_if_error])
- Example: =IFERROR(FILTER('Visit Reason + CPT'!J:J, 'Visit Reason + CPT'!G:G = B11),
 "") returns an empty string if the filter results in an error.

3. Combining FILTER and IFERROR:

- Purpose: To handle errors gracefully when using the FILTER function.
- Example: =IFERROR(FILTER('Visit Reason + CPT'!J:J, 'Visit Reason + CPT'!G:G = B11),
 "") ensures that no error messages are shown if the filter criteria are not met.





Data Extraction Super Squad: IF, ARRAYFORMULA, and REGEXEXTRACT to the Rescue!

To transform data from single cells into columns, the combination of ARRAYFORMULA, IF, and REGEXEXTRACT is incredibly powerful. Here's how to use these formulas to extract structured data from unstructured reports:

IF:

- A conditional statement that performs different actions based on whether a condition is true or false.
- In this context, it's used to check if a cell is empty and handle it accordingly.

ARRAYFORMULA:

- Applies a formula to a range of cells instead of a single cell.
- Especially useful when combined with other functions like IF and REGEXEXTRACT for complex logic across many rows.

REGEXEXTRACT:

- Utilizes regular expressions to extract matching substrings from text.
- Very effective for pulling specific data patterns from strings.

Foundation Skills:

- ARRAYFORMULA: Apply functions to entire ranges of cells.
- REGEXEXTRACT: Extract specific patterns from text.

Key Benefits:

- Reduces repetitive tasks.
- Makes data extraction precise and efficient.

Takeaway:

- Learning these functions individually builds a solid foundation.
- Combining them unlocks new levels of efficiency and capability in data analysis projects.





Breaking Down the Formula - ARRAYFORMULA and REGEXEXTRACT

ARRAYFORMULA:

- Purpose: Allows the application of a formula to a range of cells.
- Syntax ARRAYFORMULA(array_formula)
- Example: =ARRAYFORMULA(A1:A + B1:B) adds the values in columns A and B for all rows.

2. REGEXEXTRACT:

- Purpose: Extracts matching substrings according to a regular expression.
- Syntax: REGEXEXTRACT(text, regular_expression)
- Example: =REGEXEXTRACT(A1, "\b\d{5}\b") extracts a five-digit number from the text in A1.

3. Combining ARRAYFORMULA and REGEXEXTRACT:

- Purpose: To extract patterns from a range of cells efficiently.
- **Example**: =ARRAYFORMULA(IF(A1:A="", "", REGEXEXTRACT(A1:A, "\b\d{5}\b"))) extracts five-digit codes from all cells in column A.
- 4. Excel and Google Sheets have slightly different syntax for formulas. Here are the respective formulas for each platform:
 - Google: =IFERROR(ARRAYFORMULA(IF(A3:A="", "", REGEXEXTRACT(A3:A, "\b\d{5}\b"))),"")
 - Excel: =IFERROR(MID(A3, FIND("99", A3), 5), "")





Breaking Down the Formula - FILTER and IFERROR

Step-by-Step Example for the "REGEXEXTRACT" Tab

- 1. Select the Cell:
 - Step 1: Choose cell B3 on the
 "REGEXEXTRACT" tab
- 2. Enter the Formula:
 - Step 2: Enter = ARRAYFORMULA(IF(A3:A="", "", REGEXEXTRACT(A3:A, "\b\d{5}\b"))) into cell B3.
- 3. Adjust the Range:
 - Step 3: Ensure the formula references the correct range. In this case, the formula =IFERROR (ARRAYFORMULA (IF (A3:A="", REGEXEXTRACT (A3:A, "\b\d{5}\b")),"") is set up to process data from column A starting from row 4.
- 4. Copy the Formula:
 - Step 4: Since ARRAYFORMULA applies the formula to the entire range, there's no need to copy it down further.
- 5. Finishing Touches
 - Step 5: A good rule of thumb is to highlight the column(s)/Row(s) that are formulaic with a softone color to give a visual indication that it may not be just static data.



No Formulas (Raw Data)

				Α					
1	Category	Category	Visits Visit	Visit P	er Visit Un	its Cha	arge Amount	(all pmts)	
2	Primary Visit	Secondary Visit	of Pe	er Per	Deposited	of	Charge D	eposited	
3	Well Visit	99381 Visit	138 2.59	\$410.00	\$151.74	358	\$56,580.18	\$20,940.77	
4	Well Visit	99382 Visit	82 7.29	\$678.91	\$310.67	598	\$55,670.23	\$25,474.77	
5	Well Visit	99383 Visit	120 3.58	\$536.40	\$222.45	430	\$64,368.16	\$26,694.25	
6	Well Visit	99384 Visit	47 3.55	\$618.94	\$227.63	167	\$29,090.08	\$10,698.64	
7	Well Visit	99391 Visit	1655 6.99	\$593.57	\$262.27	11576	\$982,365.0	0 \$434,060.05	
8	Well Visit	99392 Visit	1407 7.25	\$562.80	\$252.28	10196	\$791,854.4	0 \$354,955.58	
9	Well Visit	99393 Visit	683 3.60	\$449.69	\$199.11	2460	\$307,136.18	\$135,994.86	
10	Well Visit	99394 Visit	308 4.06	\$575.45	\$256.88	1251	\$177,239.62	\$79,120.51	
11	Well Visit	99395 Visit	36 3.86	\$527.64	\$218.62	139	\$18,995.14	\$7,870.42	
12	4476 6.07 \$	554.80 \$244.82	27175 \$2,4	83,298.9	9 \$1,095,8	09.85			
13									
14	Primary Visit C	Category: Sick Visit							
15	Avg								
16	Number Units	Charge Avg	Number		Amount				
7	Primary Visit	Secondary Visit	of Pe	er Per	Deposited	of	De	posited	
18	Category	Category	Visits Visit	Visit P	er Visit Un	its Cha	rge Amount	(all pmts)	
19	Sick Visit	99202 Visit	4 2.75 \$	337.25	\$55.27	11 3	\$1,349.00	\$221.10	
20	Sick Visit	99203 Visit	79 1.70	\$335.46	\$146.90	134	\$26,501.04	\$11,605.28	

Formula Added (Array + Regex)

99202 Visit 99203 Visit

Sick Visit

				Α					В
1	Category	Category	Visits Vis	it Visit P	er Visit Un	its Cha	rge Amount	(all pmts)	
2	Primary Visit	Secondary Visi	t of	Per Per	Deposited	of	Charge De	posited	
3	Well Visit	99381 Visit	138 2.5	9 \$410.00	\$151.74	358	\$56,580.18	\$20,940.77	99382
4	Well Visit	99382 Visit	82 7.2	\$678.91	\$310.67	598	\$55,670.23	\$25,474.77	99383
5	Well Visit	99383 Visit	120 3.5	8 \$536.40	\$222.45	430	\$64,368.16	\$26,694.25	99384
6	Well Visit	99384 Visit	47 3.5	5 \$618.94	\$227.63	167	\$29,090.08	\$10,698.64	99391
7	Well Visit	99391 Visit	1655 6.5	99 \$593.57	\$262.27	11576	\$982,365.00	\$434,060.05	99392
8	Well Visit	99392 Visit	1407 7.3	25 \$562.80	\$252.28	10196	\$791,854.40	\$354,955.58	99393
9	Well Visit	99393 Visit	683 3.6	0 \$449.69	\$199.11	2460	\$307,136.18	\$135,994.86	99394
10	Well Visit	99394 Visit	308 4.0	6 \$575.45	\$256.88	1251	\$177,239.62	\$79,120.51	99395
11	Well Visit	99395 Visit	36 3.8	\$527.64	\$218.62	139	\$18,995.14	\$7,870.42	27175
12	4476 6.07 \$	554.80 \$244.82	27175 \$2	,483,298.9	9 \$1,095,8	09.85			
13									#N/A
14	Primary Visit C	ategory: Sick Visi	t						#N/A
15	Avg								#N/A
16	Number Units	Charge Avg	Number		Amount				#N/A
17	Primary Visit	Secondary Visi	t of	Per Per	Deposited	of	Dep	osited	#N/A
18	Category	Category	Visits Vis	it Visit P	er Visit I In	its Cha	rae Amount	(all nmts)	99202

79 1.70 \$335.46 \$146.90 134 \$26.501.04 \$11.605.28

Job Completed

egory	Category	Visits	Visit	Visit P	er Visit Un	its Cha	rge Amount	all pmts)	
nary Visit	Secondary Visit		of P	er Per	Deposited	of	Charge De	oosited	
l Visit	99381 Visit	138	2.59	\$410.00	\$151.74	358	\$56,580,18	\$20.940.77	99381
l Visit	99382 Visit	82	7.29	\$678.91	\$310.67	598	\$55,670.23	\$25,474.77	99382
l Visit	99383 Visit	120	3.58	\$536.40	\$222.45	430	\$64,368.16	\$26,694.25	99383
l Visit	99384 Visit	47	3.55	\$618.94	\$227.63	167	\$29,090.08	\$10,698.64	99384
l Visit	99391 Visit	1655	6.99	\$593.57	\$262.27	11576	\$982,365.00	\$434,060.05	99391
l Visit	99392 Visit	1407	7.25	\$562.80	\$252.28	10196	\$791,854.40	\$354,955.58	99392
l Visit	99393 Visit	683	3.60	\$449.69	\$199.11	2460	\$307,136.18	\$135,994.86	99393
l Visit	99394 Visit	308	4.06	\$575.45	\$256.88	1251	\$177,239.62	\$79,120.51	99394
l Visit	99395 Visit	36	3.86	\$527.64	\$218.62	139	\$18,995.14	\$7,870.42	99395
6 6.07 \$	554.80 \$244.82	27175	\$2,4	483,298.9	9 \$1,095,8	09.85			27175
nary Visit (Category: Sick Visit								
nber Units	Charge Avg	Numi	ber		Amount				
nary Visit	Secondary Visit		of P	er Per	Deposited	of	Dep	osited	
egory	Category	Visits	Visit	Visit P	er Visit Un	its Cha	rge Amount	all pmts)	
Visit	99202 Visit	4	2.75	\$337.25	\$55.27	11 9	1,349.00	221.10	99202
Visit	99203 Visit	79	1.70	\$335.46	\$146.90	134	\$26,501.04	\$11,605.28	99203
Visit	99203 Visit	79	1.70	\$335.46	\$146.90	134	\$26,501.04	\$11,605.28	99203
Visit	99202 Visit	4 :	2.75	5337.25	\$55.27	11 8	1,349.00 \$	221.10	99202
эдогу	Category	Visits	Visit	Visit P	er Visit Uni	its Cha	rge Amount	all pmts)	
nary Visit	Secondary Visit	(of Pa	er Per	Deposited	of	Dep	osited	



Formula Results From - ARRAYFORMULA and REGEXEXTRACT

Before: After:

	A	В
1	Category Category Visits Visit Visit Per Visit Units Charge Amount (all pmts)	
2	Primary Visit Secondary Visit of Per Per Deposited of Charge Deposited	
3	Well Visit 99381 Visit 138 2.59 \$410.00 \$151.74 358 \$56,580.18 \$20,940.77	
4	Well Visit 99382 Visit 82 7.29 \$678.91 \$310.67 598 \$55,670.23 \$25,474.77	
5	Well Visit 99383 Visit 120 3.58 \$536.40 \$222.45 430 \$64,368.16 \$26,694.25	
6	Well Visit 99384 Visit 47 3.55 \$618.94 \$227.63 167 \$29,090.08 \$10,698.64	
7	Well Visit 99391 Visit 1655 6.99 \$593.57 \$262.27 11576 \$982,365.00 \$434,060.05	
8	Well Visit 99392 Visit 1407 7.25 \$562.80 \$252.28 10196 \$791,854.40 \$354,955.58	
9	Well Visit 99393 Visit 683 3.60 \$449.69 \$199.11 2460 \$307,136.18 \$135,994.86	
10	Well Visit 99394 Visit 308 4.06 \$575.45 \$256.88 1251 \$177,239.62 \$79,120.51	
11	Well Visit 99395 Visit 36 3.86 \$527.64 \$218.62 139 \$18,995.14 \$7,870.42	
12	4476 6.07 \$554.80 \$244.82 27175 \$2,483,298.99 \$1,095,809.85	
13		
14	Primary Visit Category: Sick Visit	
15	Avg	
16	Number Units Charge Avg Number Amount	
17	Primary Visit Secondary Visit of Per Per Deposited of Deposited	
18	Category Category Visits Visit Visit Per Visit Units Charge Amount (all pmts)	
19	Sick Visit 99202 Visit 4 2.75 \$337.25 \$55.27 11 \$1,349.00 \$221.10	
20	Sick Visit 99203 Visit 79 1.70 \$335.46 \$146.90 134 \$26,501.04 \$11,605.28	

egory	Category	Visits Visit Visit Per Visit Units Charge Amount (all pmts)	
nary Visit	Secondary Visit	of Per Per Deposited of Charge Deposited	
l Visit	99381 Visit	138 2.59 \$410.00 \$151.74 358 \$56,580.18 \$20,940.77	99381
Visit	99382 Visit	82 7.29 \$678.91 \$310.67 598 \$55,670.23 \$25,474.77	99382
l Visit	99383 Visit	120 3.58 \$536.40 \$222.45 430 \$64,368.16 \$26,694.25	99383
l Visit	99384 Visit	47 3.55 \$618.94 \$227.63 167 \$29,090.08 \$10,698.64	99384
Visit	99391 Visit	1655 6.99 \$593.57 \$262.27 11576 \$982,365.00 \$434,060.05	99391
Visit	99392 Visit	1407 7.25 \$562.80 \$252.28 10196 \$791,854.40 \$354,955.58	99392
Visit	99393 Visit	683 3.60 \$449.69 \$199.11 2460 \$307,136.18 \$135,994.86	99393
Visit	99394 Visit	308 4.06 \$575.45 \$256.88 1251 \$177,239.62 \$79,120.51	99394
Visit	99395 Visit	36 3.86 \$527.64 \$218.62 139 \$18,995.14 \$7,870.42	99395
6 6.07 \$	554.80 \$244.82	27175 \$2,483,298.99 \$1,095,809.85	27175
nary Visit (Category: Sick Visit		
nber Units	Charge Avg	Number Amount	
nary Visit	Secondary Visit	of Per Per Deposited of Deposited	
egory	Category	Visits Visit Visit Per Visit Units Charge Amount (all pmts)	
Visit	99202 Visit	4 2.75 \$337.25 \$55.27 11 \$1,349.00 \$221.10	99202
Visit	99203 Visit	79 1.70 \$335.46 \$146.90 134 \$26.501.04 \$11.605.28	99203



Recap

- Efficiency: Using spreadsheets to automate manual processes saves time and reduces errors.
- Powerful Tools: Leveraging formulas like INDEX-MATCH, FILTER, ARRAYFORMULA, and REGEXEXTRACT can transform raw data into actionable insights.
- **Customization**: Spreadsheets are highly customizable to meet specific needs in a pediatric practice.
- **Empowerment**: With the right skills, office managers and doctors can create their own solutions, enhancing their workflow and decision-making capabilities.

Next Steps

- **Explore Further**: Dive deeper into spreadsheet functions and explore their potential in other areas of your practice.
- Continuous Learning: Stay updated with new features and techniques to continually improve your skills.
- **Implement and Innovate**: Start applying these techniques to your daily tasks and think about other processes that could benefit from automation.
- Share Knowledge: Encourage team members to learn and adopt these practices, fostering a culture of continuous improvement.





