# Financial Accountability for Clinical Research

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#### **AGENDA**

Clinical Research Budgeting

Medicare Coverage Analysis

Revenue Management

Results



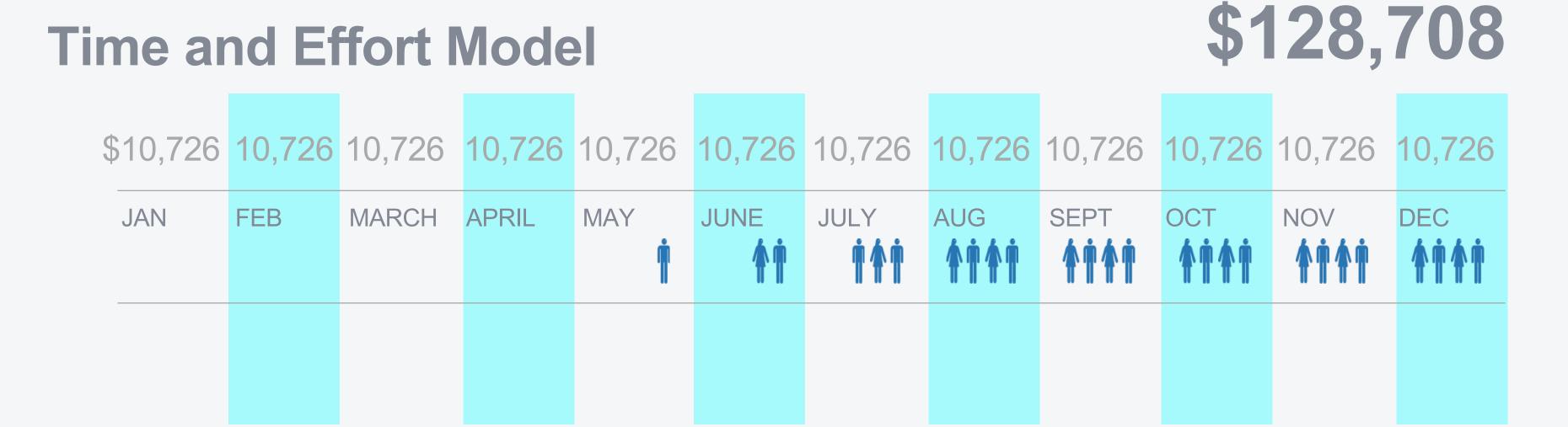
#### Visit Based Budgeting (VBB)

- VBB is a clinical research budgeting method in which personnel time and effort costs are assigned according to the visits or time points outlined in the protocol.
- Costs for expected time and effort for a particular visit/time point are included via a flat fee rather than by percent effort.
  - Preparing for visit
  - Completing visit
  - Follow up

- Data entry
- Regulatory
- Clinic Support

# Study Staff Expenses

Therapeutic Trial: Target Accrual: 15 pts/yr • Actual Accrual: 4 pts in year 1



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#### Time and Effort Model

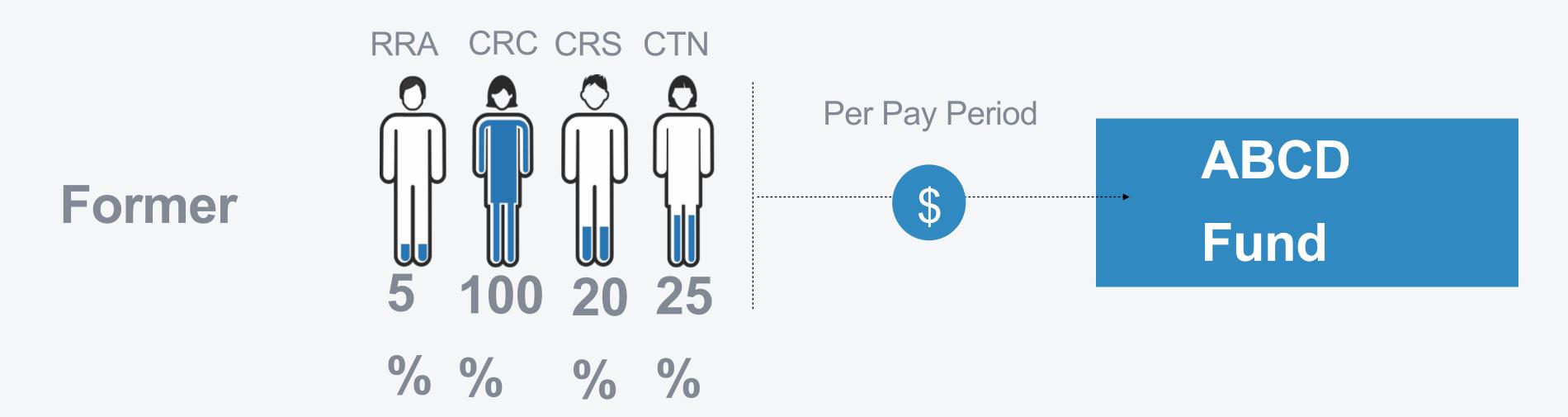
\$128,708

\$10	,726	10,726	10,726	10,726	10,726	10,726	10,726	10,726	10,726	10,726	10,726	10,726
JA	N	FEB	MARCH	APRIL	MAY	JUNE *			SEPT * † † †	OCT 	NOV <b>†††</b>	DEC <b>†††</b>
					\$3,010	4,618	6,226	7,834	6,432	6,432	6,432	6,432

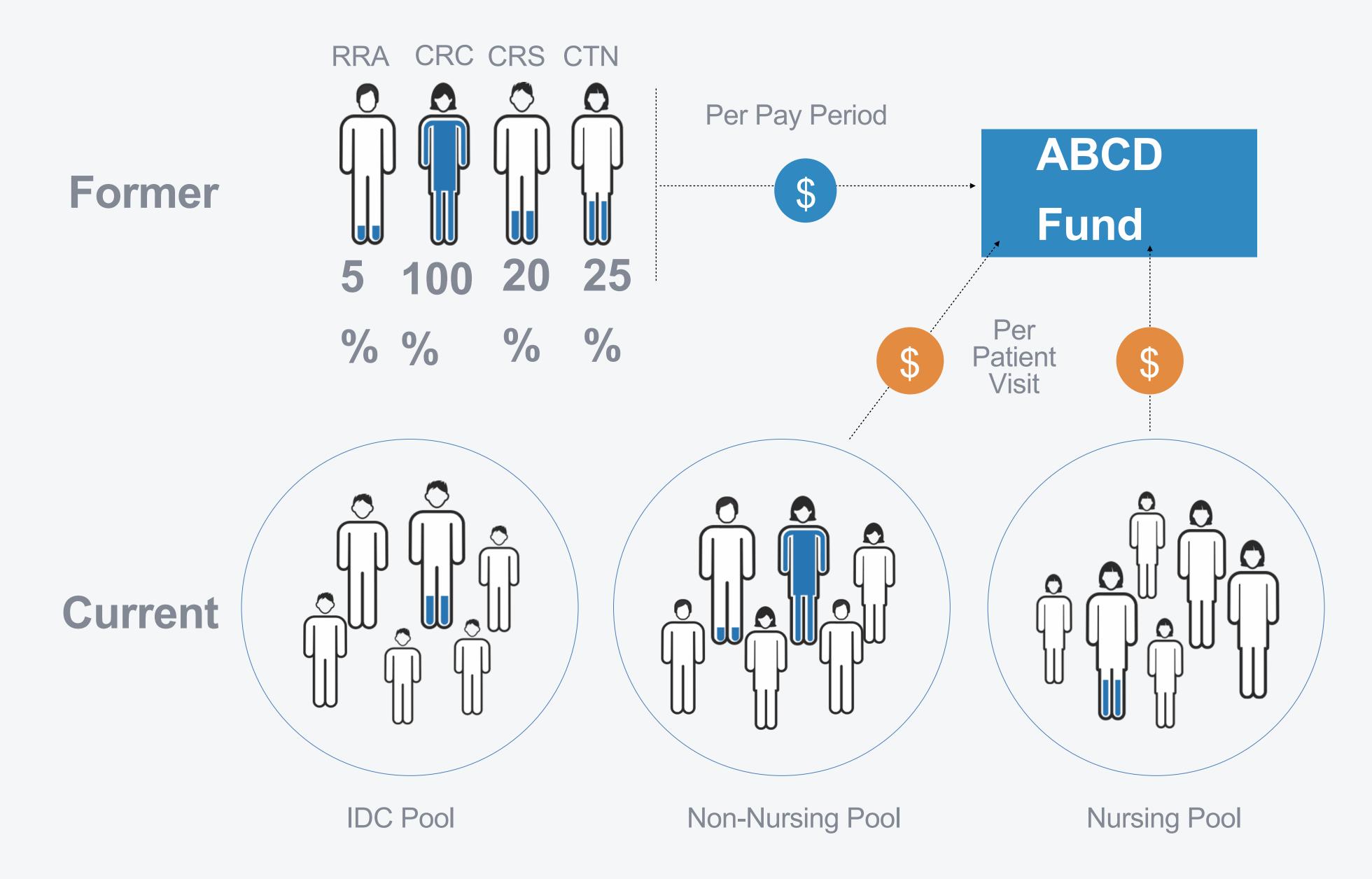
**VBB Model - Current** 

\$47,416

## Study Staff Budgeting and Chargeback Changes



# Study Staff Budgeting and Chargeback Changes



### **Visit Based Budgeting**

- VBB was implemented across MSK in April 2017
- Simplifies development of internal budget and ensure MSK's costs are covered
- Conforms to industry sponsor requirements
- Aligns with CTMS billing modules to facilitate external billing
- Facilitates internal chargeback/recovery for study staff labor pools

#### **Clinical Trial Budgeting**

Clinical trial budgets are comprised of three key components

- 1. Administrative fees (i.e. IRB review, start-up)
- 2. Labor costs for Principal Investigator, Non-Nursing Study team, Clinical Trial Nurse
  - Visits within a protocol are assigned a level based on the complexity of the visit (i.e. Screening visits are assigned a high complexity level, follow up visits are assigned a low level of complexity)
- 3. Research Non-Billable (RNB) fees (i.e. Scans, Blood work)
  - Each procedure, test, and intervention is reviewed to determine if it is billable to the sponsor or to the patient/insurance. Procedures that are deemed as RNB are incorporated into the sponsor budget.

#### **Administrative Fee Schedule**

2024 Administrative Fees (INITIAL):	: All PROTOCOLS (exclu	uding Biospecimen, RRP, Exemptions)			Study Sponsor	ſ		
2024 Fee	Frequency Per Protocol	Fee Recovery To:	External For Profit	Internal	Federal	External Not <u>For</u> Profit	Apply IDC Y/N**	Cost Recovery Automation?
Protocol Review and Activation	One Time Fee	CRA/Protocol Review Core (PRC)	\$2,435	\$487	N/A	N/A	Z	Υ
Clinical Research Administration Activation	One Time Fee	CRA/Protocol Activation Core (PAC)	\$5,500	\$2,500	N/A	N/A	N	Υ
Medicare Coverage Analysis (New Protocol)	One Time Fee	CR Finance	\$3,380	\$1,690	N/A	N/A	N	Υ
New Protocol Submission (MSK IRB)	One Time Fee	CRA/HRPP	\$3,043	\$2,128	N/A	\$2,128	N	Υ
Scientific Review	One Time Fee	CRA/Protocol Review Core (PRC)	\$3,043	\$2,128	N/A	\$2,128	Z	Υ
Protocol Start-Up Fee	One Time Fee	Respective Labor Pool	\$5,200	N/A	N/A	N/A	Ν	N
CR Compliance	One Time Fee	CRA/Quality Assurance (QA)	\$1,264	\$1,264	N/A	\$1,264	Z	Υ
Cross-Filed, Existing IND or IND Exempt Management	One Time Fee	CRA/Reg Oversight & Prod Dev	N/A	\$1,951	N/A	N/A	N	Υ
Electronic FDA Submission (eCTD fee) – Full/Cross-filed IND (IND Office)	One Time Fee	CRA/Reg Oversight & Prod Dev	N/A	\$2,424	N/A	N/A	Ν	N

## MSK Internal Budget Example (Personnel)

10/30/2023 template version	The Internal St		•				note, costs in thi -MSK funding so		e more or less			
Project Title:	Phase X Interve	ntional/Therape	eutic Protocol									
Principal Investigator:	Dr. Smith					Protocol Spon	sor/Author Type	External	For-Profit			
Protocol ID:							Funding Source:		For-Profit			
							Type of Study:	Thera	peutic			
Total Expected Accrual:	10					N	ame of Sponsor:	Ind	ustry			
Expected Subjects/Year:	5						Name of CRO:					
Expected time to accrue:	2											
Expected time on treatment:	12 months											
Expected time in follow-up:	5Y					NOTES:						
Principal Investigator Percent Time and Effort	5%				update if waived							
# of external Multicenter sites												
(Non-Alliance, Non-CHERP):	0											
Overhead (IDC) Percentage (update if not 35%)	35%											
RFM Look Up												
Markup	20%											
											Total per	Total for All
									STFU @ 30	LTFU (q3M for	patient/All	patients/
VISIT-BASED FEES	Screening	C1D1	C1D15	C2D1	C3D1	C4D1	C5+D1	EOT	Days	5Y)	Occurrences	Occurences
Visit Complexity	LP 7	LP 7	LP 5	LP 6	LP 6	LP 6	LP 6	LP 7	LP 4	LP 1		
Anticipated # of occurrences/subject	1	1	1	1	1	1	7	1	1	20		
Personnel (Therapeutic Chargebacks)												
Principal Investigator	\$916	\$916	\$558	\$677	\$677	\$677	\$677	\$916	\$381	\$34	\$11,137	\$111,370.00
Non-Nursing Study Staff	\$916	\$916	\$558	\$677	\$677	\$677	\$677	\$916	\$381	\$34	\$11,137	\$111,370.00
Nursing Study Staff	\$586	\$586	\$371	\$494	\$494	\$494	\$494	\$586	\$186	\$31	\$7,871	\$78,705.00
Nursing Study Staff (INPATIENT NURSE)											\$0	\$0.00
SUBTOTAL PERSONNEL (DC only)	\$2,418.30	\$2,418.30	\$1,486.70	\$1,847.90	\$1,847.90	\$1,847.90	\$1,847.90	\$2,418.30	\$947.90	\$98.80		
20%	\$2,901.96	\$2,901.96	\$1,784.04	\$2,217.48	\$2,217.48	\$2,217.48	\$2,217.48	\$2,901.96	\$1,137.48	\$118.56		

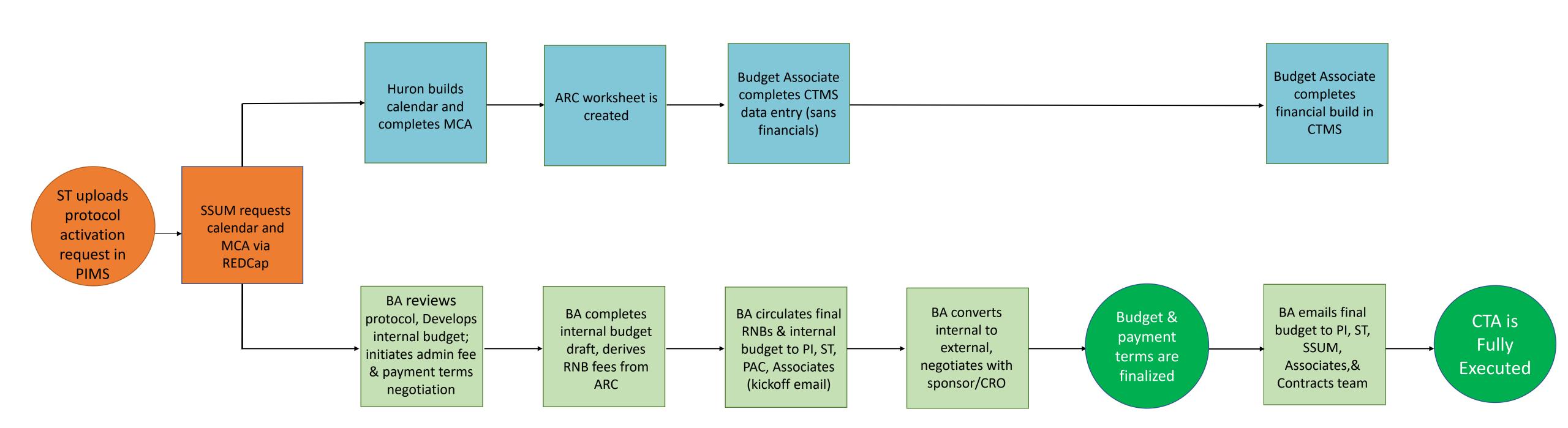


### MSK Internal Budget Example (Research Sample Collection, SOC & RNB Elements)

	Screening	C1D1	C1D15	C2D1	C3D1	C4D1	C5+D1	EOT	STFU @ 30	LTFU (q3M for	Total per patient	Total for All
Research Sample Collections												
DTU Industry rates												
DTU Level	Select	Inpatient	Simple	Complex	Simple	Simple	Simple	Moderate	Select	Select		
DTU Price		\$2,400	\$180	\$1,200	\$180	\$180	\$180	\$500			\$5,900	\$59,000.00
CSP Price List												
Correlative Sciences Program - Blood Samples												
Level 1: 1 Sample												
Level 2: 2-5 Samples	[Select CSP								[Select CSP	[Select CSP		
Level 5 = 6+ Samples	Level]	Level 5	Level 1	Level 5	Level 1	Level 1	Level 1	Level 5	Level]	Level]		
CSP Price	d	\$250.00	\$80.00	\$250.00	\$80.00	\$80.00	\$80.00	\$250.00	-di	-di	\$1,550	\$15,500.00
Correlative Sciences Program - Tissue Samples												
Level 3: Archival Tissue		[Select CSP		[Select CSP	[Select CSP							
Level 4: Fresh Biopsy	Level 4	Level	Level	Level	Level]	Level]	Level	Level 4	Level]	Level]		
CSP Price	\$190.00		22.4.2.1	22.02.1		22.4.2.1		\$190.00		22121	\$380	\$3,800.00
Venipuncture/Port Draw (if research bloods drawn	•											
on days routine bloods are not collected)											\$0	\$0.00
											-	
Fresh Tumor Biopsy	Х							X			\$0	\$0.00
PKs		6X	Х	6X	Х	Х	X	6X			\$0	\$0.00
ADA		X		Х				X			\$0	\$0.00
[Insert other RNBs]											\$0	\$0.00
SUBTOTAL RNBs (IDC to be applied, when applicable)	\$190.00	\$2,650.00	\$260.00	\$1,450.00	\$260.00	\$260.00	\$260.00	\$940.00	\$0.00	\$0.00		
	Screening	C1D1	C1D15	C2D1	C3D1	C4D1	C5+D1	EOT	Days	5Y)	Total per patient	patients/Occur
Procedures												
Dispensing Fee		\$92.00		\$92.00	\$92.00	\$92.00	\$92.00				\$1,012	\$10,120.00
Triplicate ECG		N/A - Sponsor		N/A - Sponsor				N/A - Sponsor			\$0	\$0.00
Physical Exam	SOC		\$0	\$0.00								
Pregnancy Test	SOC	SOC		SOC	SOC	SOC	SOC	SOC			\$0	\$0.00
Hematology	SOC		\$0	\$0.00								
Chemistry	SOC		\$0	\$0.00								
Chemistry - GGT	\$98.15	\$98.15	\$98.15	\$98.15	\$98.15	\$98.15	\$98.15	\$98.15	\$98.15		\$1,472	\$14,722.50
Chemistry - Uric Acid	\$72.80 \$170.95	\$72.80 \$262.95	\$72.80 \$170.95	\$72.80 \$262.95	\$72.80 \$262.95	\$72.80 \$262.95	\$72.80 \$262.95	\$72.80 \$170.95	\$72.80 \$170.95	\$0.00	\$1,092	\$10,920.00
SUBTOTAL Correlatives (IDC to be applied) Sub-Total	\$3,262.91	\$5,814.91	\$2,214.99	\$3,930.43	\$2,740.43	\$2,740.43	\$2,740.43	\$4,012.91	\$1,308.43	\$118.56	\$28,884.43	
IDC/Overhead 35%	\$1,142.02	\$2,035.22	\$775.25	\$1,375.65	\$959.15	\$959.15	\$959.15	\$1,404.52	\$457.95	\$41.50	\$10,109.55	
Total with Overhead		\$7,850.13	\$2,990.24	\$5,306.08	\$3,699.58	\$3,699.58	\$3,699.58	\$5,417.43	\$1,766.38	\$160.06	\$38,993.98	
TOTAL based on # of occurences	\$4,404.93	\$7,850.13	\$2,990.24	\$5,306.08	\$3,699.58	\$3,699.58	\$25,897.06	\$5,417.43	\$1,766.38	\$3,201.12	\$64,232.53	\$642,325.28

# CR Finance Budget Development Workflow

Industry-sponsored therapeutic, therapeutic/QoL and diagnostic clinical trials

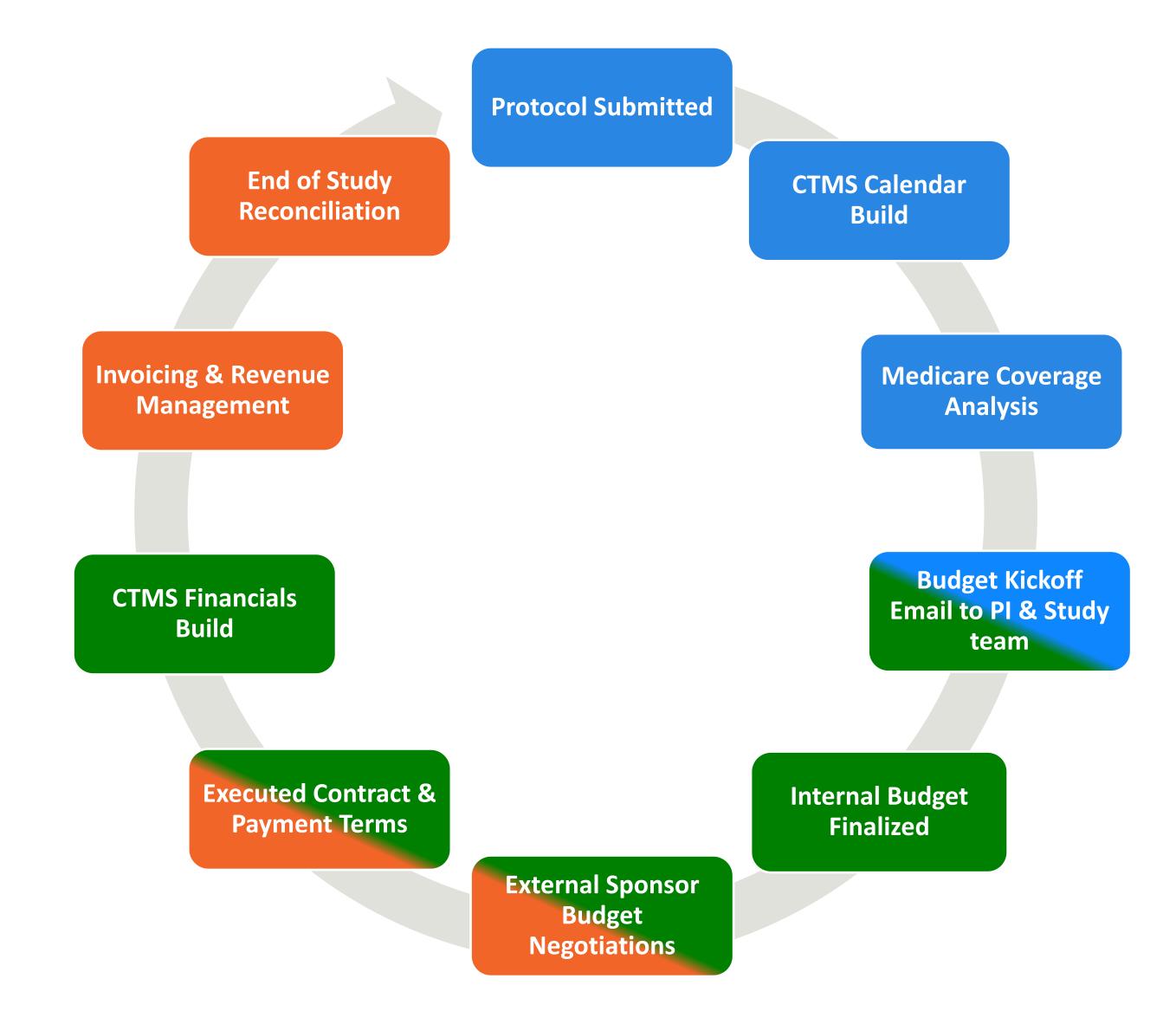


#### Key:

- ARC: Application for Research Charges
- BA: Budget Analyst
- CTA: Clinical Trial Agreement
- CTMS: Clinical Trial Management System
- IRB: Institutional Review Board
- MCA: Medicare Coverage Analysis
- PI: Principal Investigator
- PIMS: Protocol Information Management System
- SSUM: Senior Start Up Manager
- ST: Study Team



#### **CR Finance workflow Responsibilities within Protocol Lifecycle**





#### Medicare Coverage Analysis (MCA)

• An MCA is required for all clinical trials in which tests, procedures, and interventions associated with a clinical trial are invoiced to third party payers.

 Preparing an MCA involves determining the underlying eligibility of the study for Medicare coverage and reviewing clinical events specified in the protocol to determine which can be reimbursed by Medicare.

MCA is a centralized process within the CR Finance unit.

#### **Medicare Coverage Analysis**

 Research non-billable and standard of care billing designations and are entered directly into the Clinical Trial Management System (CTMS) billing grid.

• A justification, National Coverage Determination or Local Coverage Determination is recorded in the CTMS.

CR Finance provides investigators the completed MCA.

#### **Medicare Coverage Analysis**

- MCA is performed by certified Coverage Analysts (Huron-LLC).
- MSK accepts Huron's designations.
- Investigators can request updates to designations at the service level.

- Service level designation updates require approval from the Service Chief and CRA Leadership.
- Designation updates are added to MSK or service specific standard of care lists.

## Medicare Coverage Analysis Example

	Protocol No.: MED20-	XXX		:									Version: V1 (Coverage Analysis Signoff) A0
Arm ESC: ESC: Dose Escalation	Treatment												
Cohort (Phase 1)	Screening 1@28Days	TREATM	MENT CYC	CLES For E	SCALATIO	ON COHO	RT 35 Cy	cles @21I	Days				Comments
	Day -28 to -1	C1D1	C1D2	C1D3	C1D4	C1D8	C1D15	C2D1	C3D1	C4D1	C5D1	C6D1	
Visit Site	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	This is not a billable item or service
DTU Level 1			RNB(TE	RNB(TE	) RNB(TE	) RNB(TE)	RNB(TE)						This is a research-related cost
DTU Level 2								RNB(TE)	RNB(TE)	RNB(TE	RNB(TE	) RNB(TE	This is a research-related cost
													This item may include the following CPT codes: 99201-99215, G0463
													Per NCCN Guidelines Version 3.2020 Non-Small Cell Lung Cancer a physical exam is recommended at work-up and every 3-6 months for the first 3 years and then every 6 months for the next 2 years during follow-up
Complete Physical Exam <sup>7</sup>	Pt1(CC)	RNB							RNB		RNB		Coverage is supported for this patient population at screening under NCD 310.1
													A conventional care reference could not be found to support a physical exam during treatment in this patient population. In addition, as this is a first in human trial, no side effects of the study drug warrant a physical exam during treatment. It should therefore be considered research-related and paid for by the sponsor when performed during treatment.
													This item may include the following CPT codes: 36415, 36591, 36592
													Venipuncture is a medically necessary component of laboratory blood testing. To the extent that the laboratory blood tests are covered as part of this analysis, so too is the venipuncture.
Venipuncture	Pt1(SM)	Pt1(SM)	) RNB	RNB	RNB	Pt1(SM)	RNB	Pt1(SM)	Pt1(SM)	Pt1(SM)	Pt1(SM	Pt1(SM)	Coverage is supported for this patient population at screening, day 1 throughout treatment, cycle 1 day 8, and during follow-up under NCD 310.1
													A conventional care reference could not be found to support performing a venipuncture in this patient population at Cycle 1 Days 2, 3, 4, and 15. It should therefore be considered research-related and paid for by the sponsor when performed at these time points

RNB – Research non-billable

CC – Conventional Care

Pt1 – Billable to patient

T&E – Time and Effort

NA – Not Applicable/Billable

SM – Safety Monitoring



#### Medicare Coverage Analysis (MCA)

MSK global standard of care list.

 Procedures are deemed as billable by MSK to patient's insurance.

• List streamlines MCA and expedites budget development & negotiation.

TEST / PROCEDURE	CPT CODE
AMYLASE BLOOD	82150
AUTOMATED URINALYSIS W/ MICRO	81001
CBC W/ AUTOMATED DIFFERENTIAL	85025
COMPREHENSIVE METABOLIC PANEL	80053
CREATINE PHOSPHOKINASE	82550
D DIMER	85379
DIRECT BILIRUBIN	82248
ECG, SINGLE	93000-9310
ECHO (SCREENING)	93306
FIBRINOGEN	85385
FOLLICLE STIMULATING HORMONE	83001
*FREE T3, BLOOD	84481
*FREE T4	84439
HCG QUALITATIVE SERUM	84703
HCG QUALITATIVE URINE	84703
HEPATITIS B SURFACE ANTIBODY	86706
HEPATITIS BC ANTIBODY	86704
HEPATITIS BS ANTIGEN	87340
HEPATITIS B PCR	87517
HEPATITIS C ANTIBODY	86803
HEPATITIS C PCR, QUANTITATIVE	87522
HIV AG/AB	87389
HIV PCR	87536
LACTIC DEHYDROGENASE	83615
LIPASE SERUM	83690
MAGNESIUM BLOOD	83735
MUGA (SCREENING)	78472
±OPHTHALMOLOGY EXAMS	US0001, US0017
PARTIAL THROMBOPLASTIN TIME	85730
PHOSPHORUS SERUM	84100
PHYSICAL EXAMS	Evaluation and Management code will be applied as
	appropriate
PROTHROMBIN TIME	85610
SCANS (SCREENING – PT(INV))	Scan code(s) will be applied as appropriate
*THYROID STIMULATING HORMONE	84443

#### ±Drug class of MEK Inhibitors

<sup>\*</sup>Tests will be considered billable for drug classes: tyrosine kinase inhibitors and immunotherapeutic



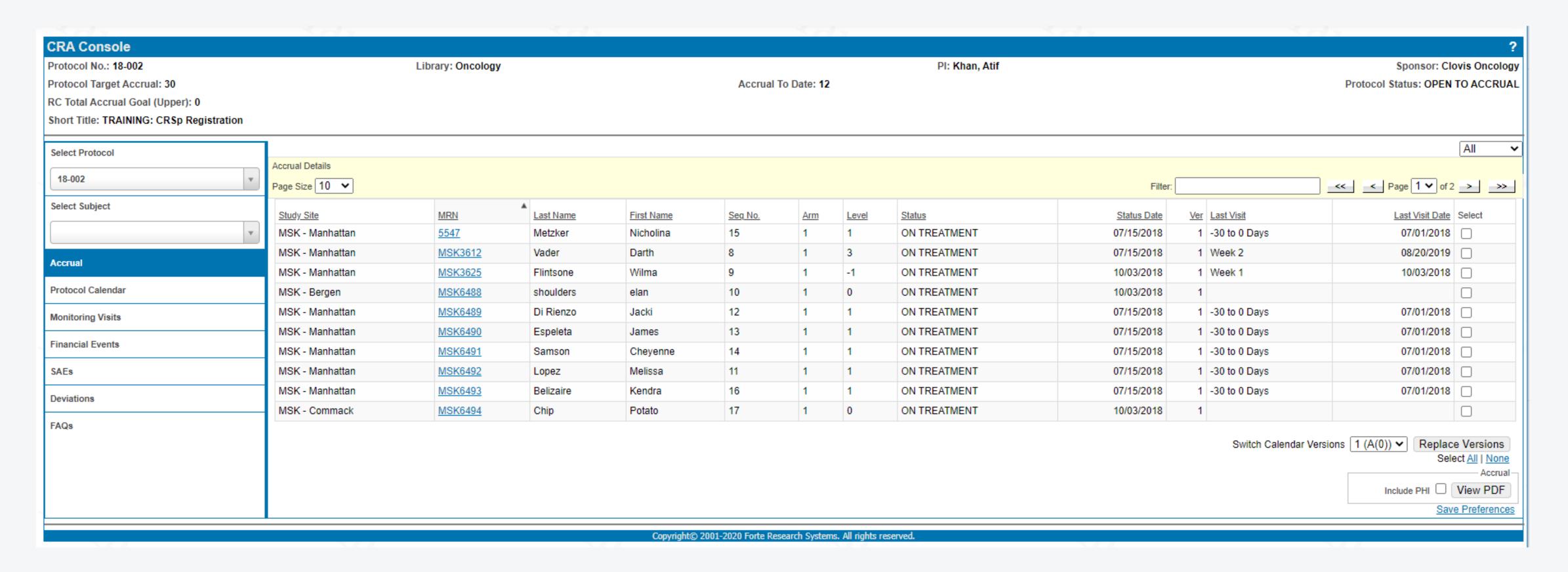
### Revenue Management

- The Revenue Management team within CR Finance is responsible for:
  - Submitting invoices to sponsors for activity recorded in the CTMS including administrative fees, visits, milestones, and RNBs

Identifying and applying payments made by sponsors

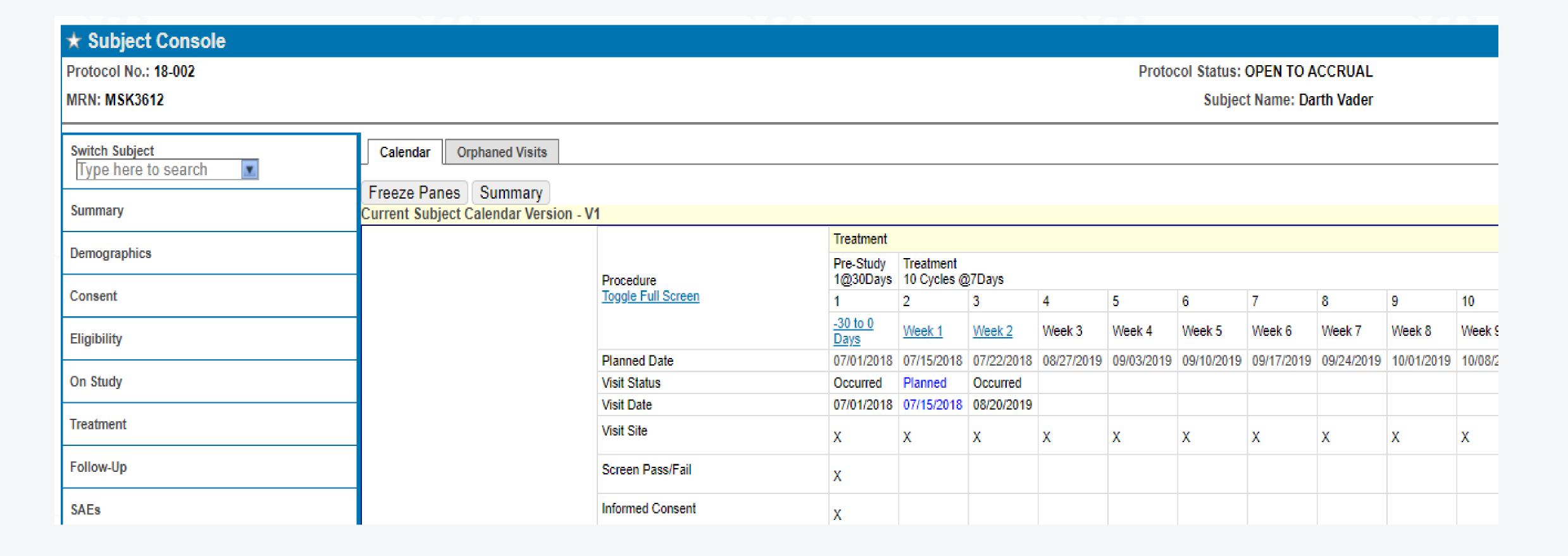
- Performing end of study reconciliations
- Financial build review within the CTMS

The Clinical Trials Management System (CTMS) is software designed to capture the patient and financial data of clinical trials.



Example of patients tracked in CTMS

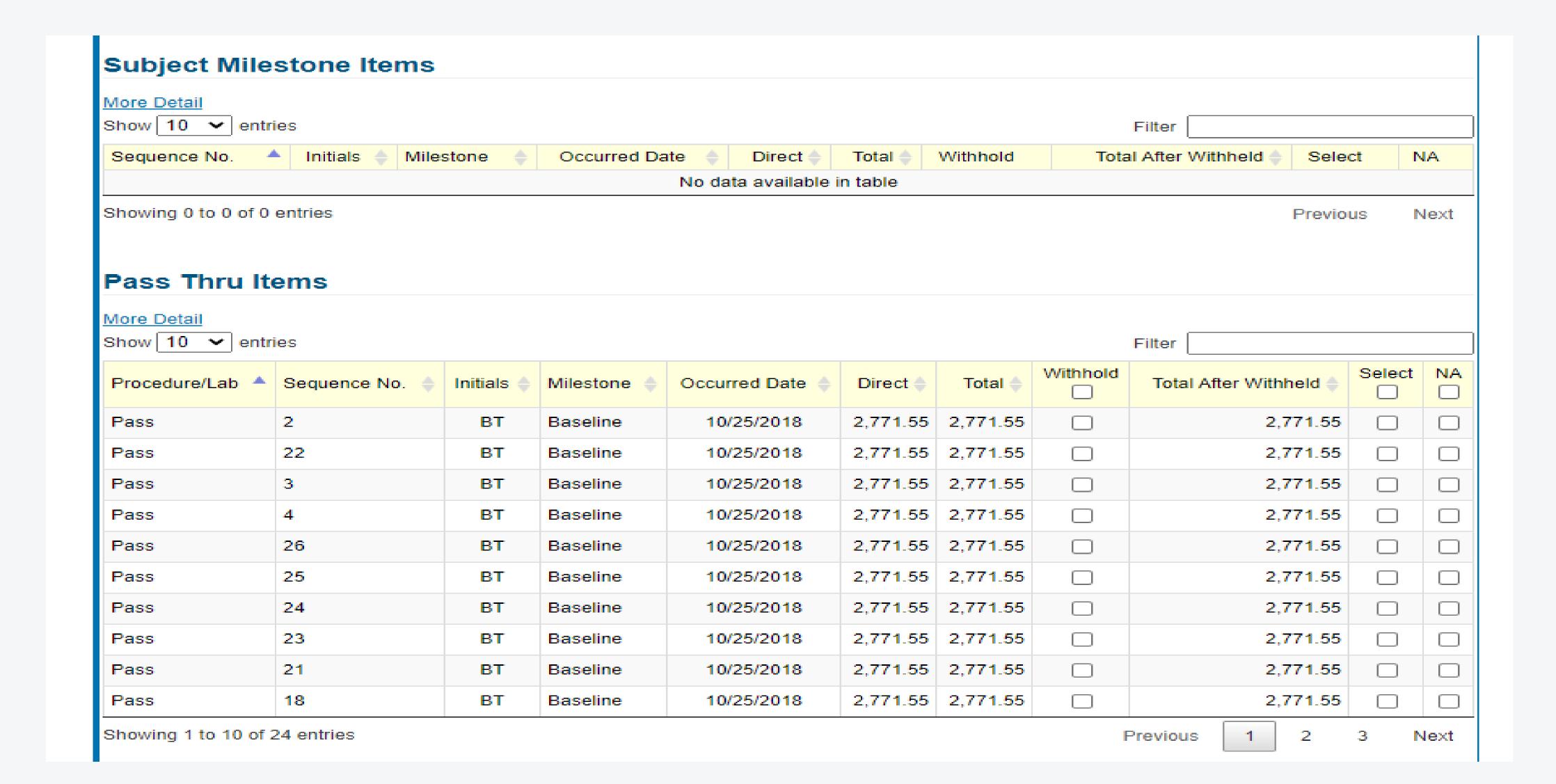
#### Patient calendars are built to record patient visits and procedures completed.



# Each visit timepoint has a pre-populated list of procedures to be checked out by study teams.

Subject Visit Upda	ate								User: Kevin Frodell
Protocol No.: 18-002				Protocol	Status: OPE	EN TO ACCRUAL		Subject Stat	tus: ON TREATMENT
MRN: MSK3612					Subject Na	me: Darth Vader			Sequence No.: 8
Visit Details							Phase: Treatment	Visit: Week 2	Version: V1 (05/14/2018)
Visit Date	08/20/2019	Visit Status A	cknowledged			erance +/-0			
Visit Description					Reset Calenda	ır? All Visits			
Data Collection Completed Date		Monitored Date			Submitte Date		Locked Date		
Clinical Comments									
Data Comments									
Procedures									
Procedure			Procedure Date		soc	SOC Modifier	Missed	Missed Co	ount N/A
Visit Site			07/23/2018						
MSK Bergen		~							
Physical examination			07/23/2018	Ħ¥					
Adverse event monitori	ng		07/23/2018	HÇ.					
Drug diary review			07/23/2018						
Rucaparib <sup>a</sup>			07/23/2018						
Radiation Therapy			07/23/2018						
Foot Notes a Ruc	aparib will be administer	ed concurrently with RT, o	commencing with	fraction #1	and daily thr	oughout RT			
									Close
		Сору	right© 2001-2020	Forte Resear	ch Systems. Al	ll rights reserved.			

The system cross-references this data entry with financial parameters built into each calendar, creating a list of invoiceable visits and procedures.



The Revenue Management team is easily able to create invoices within the system and send to the sponsor for payment.

										Sponse	or: Calith	nera Bioscienc
Invoice No.	1001012			Other Invoice No	0.			Invoice	Date			
Bill To												
				No	information	entered						
Pass Thru Items												
					Amount							
Procedure/Lab	Sequence No.	Initials	Visit	Occurred Date	Direct <sup>1</sup>	Total <sup>2</sup>	Withhold?	Total After Withheld	Paid <sup>3</sup>	Due <sup>4</sup>	Write- off	Comments
Pass	2	BT	Baseline	10/25/2018	2,771.55	2,771.55	N	2,771.55		2,771.55		
e Comments								Total Du		Withheld:	2,7	0.00 <b>71.55</b>
ce Comments								Total Du			2,7	
direct and overhead sludes indirect (if ap syment made agains nount due after pays	plicable) and ove stitem	erhead ch	narges					– Choose te	Vievemplate	w Excel	View	PDF Upd
lirect and overhead ludes indirect (if ap yment made agains	plicable) and ove stitem	erhead ch	narges					- Choose te	Vievemplate	w Excel	View F •	71.55

### Financial Management of Clinical Trial Funds

- Revenue Management partners with Research Financial Management, Budget & Billing Compliance, and Protocol Operations to monitor research fund balances and review fund deficits
  - Quarterly fiscal management meetings are held at the department level to review funds in deficit and identify causes and solutions
  - Monthly deficit escalation meetings are held to review the largest fund deficits and ensure progress is being made towards deficit resolution
  - Reducing deficits is a shared institutional goal between Revenue Management, Research
     Financial Management, and Budget & Billing Compliance

### Research Charge Analysis

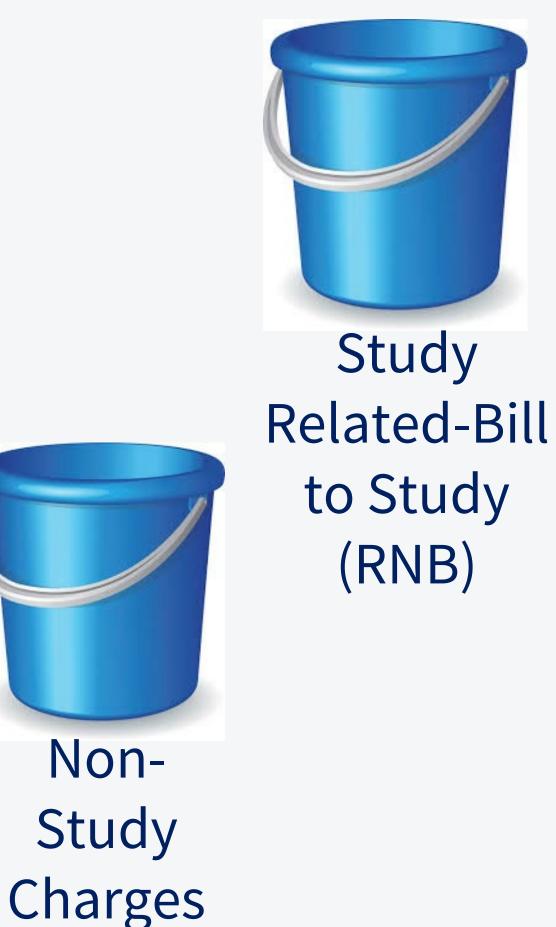
#### What We Do

 Review and route charges for research patients in Epic

#### **Quick Facts**

- We review 100% of charges for research patients
- We review both hospital billing and physician billing
- We sometimes review 10M worth of charges in a single day





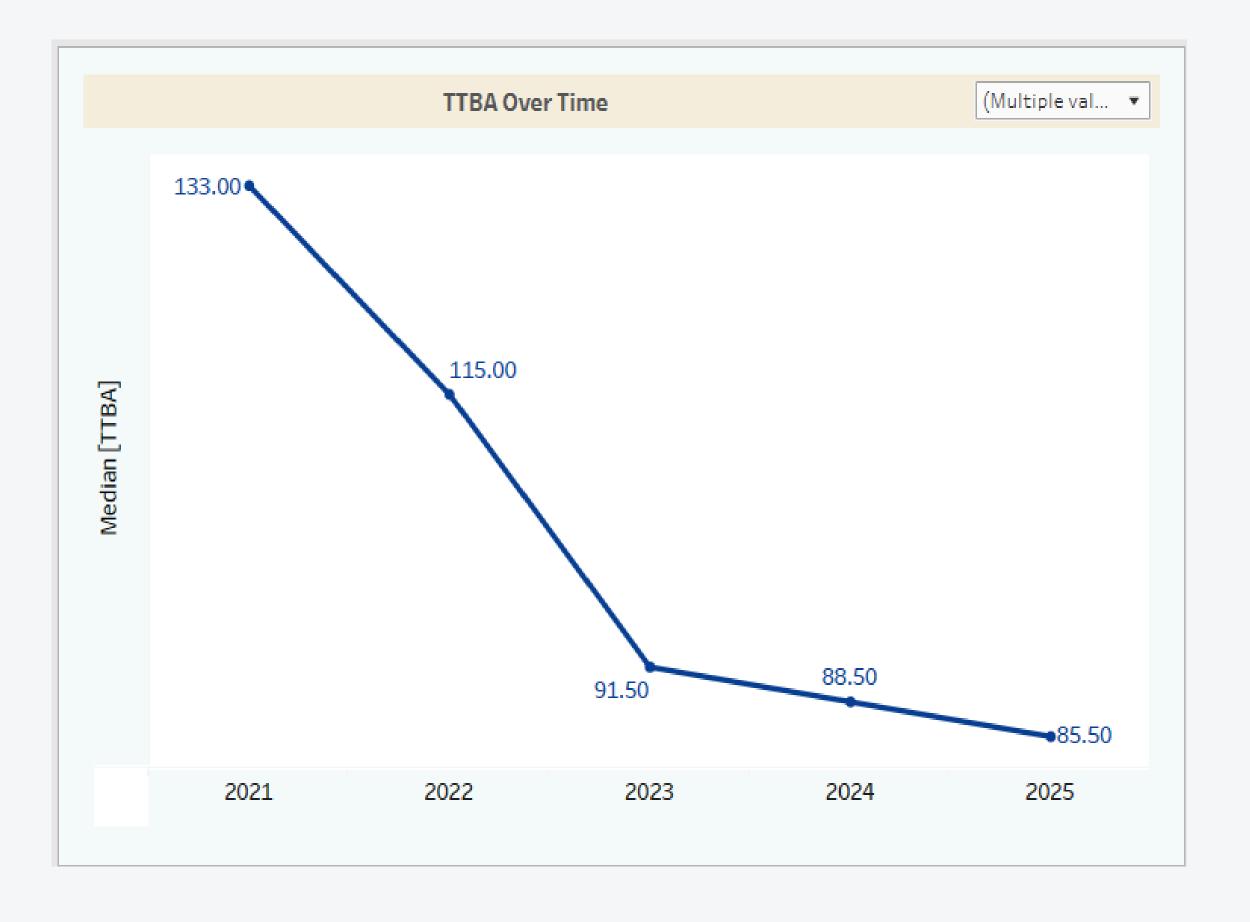
Non-

Study

#### Results and team accomplishments (2020 - 2025)

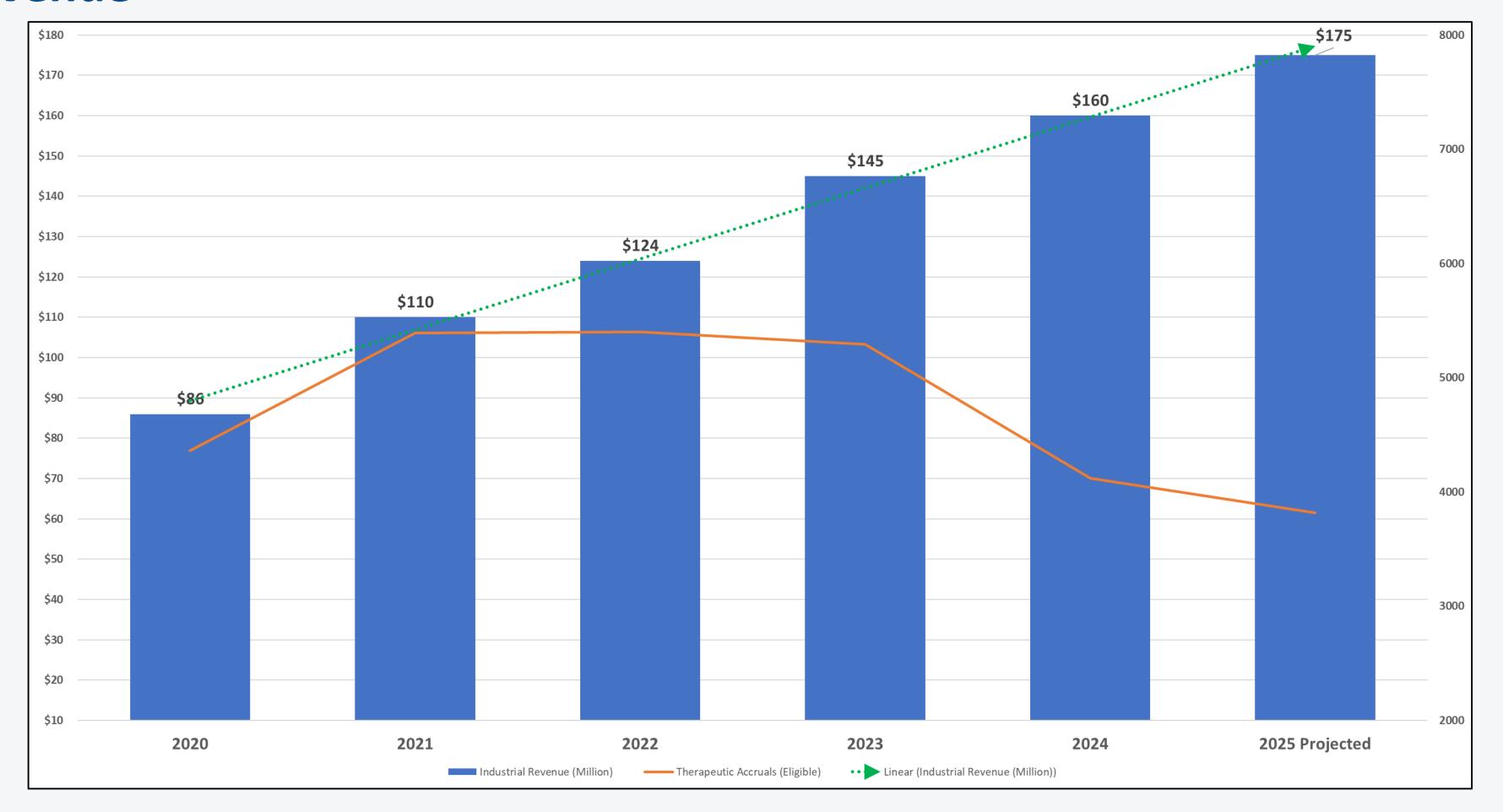
- Completed centralization of Medicare coverage analysis, budget development and negotiation, and revenue management
- Established MSK and service specific MCA lists, created two-year rate cards, developed negotiation tactics playbook and payment terms guidelines
- >Implemented Epic for CR Finance procedures including establishment of Research Charge Analysis team
- Partnered with CR IT, RTM IT and IO to adopt technological solutions to optimize CR Finance and CRA processes including
  - CR Finance workload analysis dashboards
  - Chargeback automations for Labor Pools and CRA Fees
  - CTMS to ARC integration for new and amended studies
- >RM activity triggers (i.e. invoiceable items)
- **≻**Epic implementation
- **►** LOI intake
- Achieved revenue records year over year for 8 consecutive years (sans 2020) averaging 15%+ increases. On pace for \$175M+ in revenue in 2025.
- >Accounts receivable, aging invoices and unapplied payments in 2025 are at lowest amount since tracking these KPIs

#### Results and team accomplishments (2018 – 2025)



- •Overall CTA TTBA: 85.5 days (lowest on record)
- Priority 1 study TTBA: 53 days (lowest on record)
- Accelerated Advantage TTBA: 16 days (world-class)
- Median TTBA down ~30 days since 2022; on pace for fastest year
- •Drivers: process enhancements, automation, and efficiency.

#### **RESULTS: Revenue**



# Thank you!