



University of Iowa Health Care

Presentation to

The Board of Regents, State of Iowa

February 21-22, 2018

Agenda

Today's Presentation

Opening Remarks

Operating and Financial Performance

Faculty Presentation: Theranostics—Concepts and Opportunities for Cancer Treatment



OPENING REMARKS

*Brooks Jackson, MD, MBA
Vice President for Medical Affairs
& Dean, Carver College of Medicine*



OPERATING AND FINANCIAL PERFORMANCE

Kenneth P. Kates

Associate Vice President

& Chief Executive Officer, UI Hospitals and Clinics

Doug True

Interim Associate Vice President for Finance

& Chief Financial Officer

Volume and Financial Highlights

Through December 31, 2017

Operating Margin

- December year-to-date actual of 1.0%, budget of 1.9%
- Continuing good financial recovery against budget

Volume Growth

- Year-over-year: Inpatient 3.3%, Surgeries 4.2%, Clinic Visits 7.1%

Acuity

- Highest in University of Iowa Health Care history

Census

- Many days above 90%
- 7 additional beds are being opened in FY18
- 2 more ORs in Children's Hospital to open in FY19
- Closer relationship with post-acute providers being developed

Payer Mix

- Medicare growth continues
- FY17: 35.7%, FY18: 36.7%

Accounts Receivable

- Positive trend for government and out-of-state payers
- Progress resolving older cases.

Salary Expenses

- Salary expenses: 2.2% below budget year-to-date
- Reduction of 180 agency nurses over past 6 months

Non Salary Expenses

- 5.0% above budget year-to-date
- Implant and pharmacy costs

Volume Indicators

Fiscal Year to Date December 2017

Operating Review (YTD)	Actual	Budget	Prior Year *	Variance to Budget	Variance to Budget %	Variance to Prior Year	Variance to Prior Year %
Discharges	17,713	17,912	17,142	(199)	-1.1% ○	571	3.3% ●
Patient Days	115,880	116,130	112,513	(250)	-0.2% ○	3,367	3.0% ●
Average Daily Census	629.78	631.14	611.48	(1.36)	-0.2% ○	18.30	3.0% ●
Total Surgeries	16,438	17,553	15,778	(1,115)	-6.4% ●	660	4.2% ●
- Inpatient	7,943	8,508	7,551	(565)	-6.6% ●	392	5.2% ●
- Outpatient	8,495	9,045	8,227	(550)	-6.1% ●	268	3.3% ●
ED Visits	29,942	30,613	30,215	(671)	-2.2% ○	(273)	-0.9% ○
Total Clinic Visits	484,763	480,302	452,519	4,461	0.9% ○	32,244	7.1% ●

 Greater than 2.5% Favorable
  Neutral
  Greater than 2.5% Unfavorable

* from ongoing operations

Discharges by Type

Fiscal Year to Date December 2017

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	Variance to Budget	% Variance to Budget	Variance to Prior Year	Variance to Prior Year	% Variance to Prior Year
Adult Medical	5,730	5,029	4,816	701	13.9%	●	914	19.0%	●
Adult Surgical	8,752	9,596	9,183	(844)	-8.8%	●	(431)	-4.7%	●
Adult Psych	590	617	589	(27)	-4.4%	●	1	0.2%	○
<i>Subtotal – Adult</i>	<i>15,072</i>	<i>15,242</i>	<i>14,588</i>	<i>(170)</i>	<i>-1.1%</i>	○	<i>484</i>	<i>3.3%</i>	●
Pediatric Medical & Surgical	1,847	1,910	1,827	(63)	-3.3%	●	20	1.1%	○
Pediatric Critical Care	537	447	427	90	20.1%	●	110	25.8%	●
Pediatric Psych	257	313	300	(56)	-17.9%	●	(43)	-14.3%	●
<i>Subtotal – Pediatrics</i>	<i>2,641</i>	<i>2,670</i>	<i>2,554</i>	<i>(29)</i>	<i>-1.1%</i>	○	<i>87</i>	<i>3.4%</i>	●
TOTAL	17,713	17,912	17,142	(199)	-1.1%	○	571	3.3%	●

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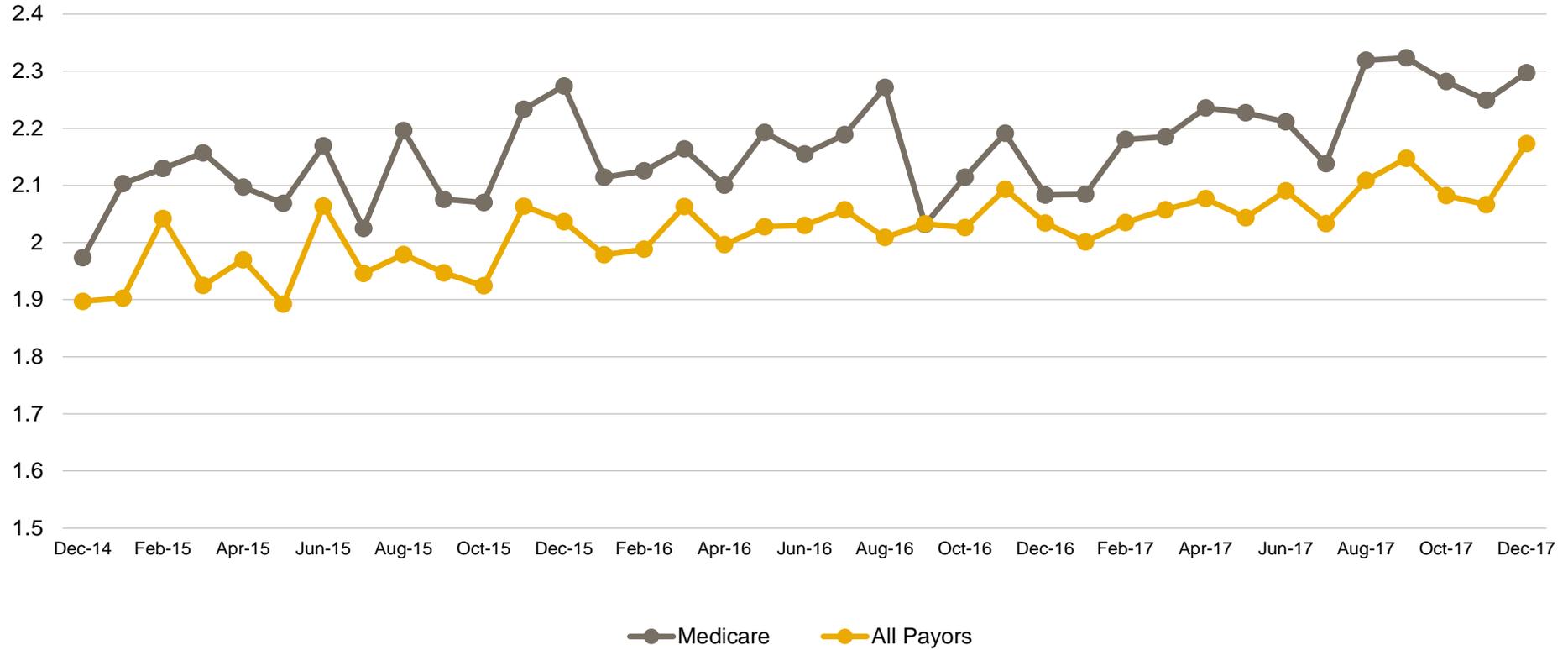
Discharge Days by Type

Fiscal Year to Date December 2017

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	Variance to Budget	%	Variance to Prior Year	Variance to Prior Year	%
Adult Medical	32,459	27,686	26,982	4,773	17.2%	●	5,477	20.3%	●
Adult Surgical	47,834	51,343	50,030	(3,509)	-6.8%	●	(2,196)	-4.4%	●
Adult Psych	10,661	10,036	9,776	625	6.2%	●	885	9.1%	●
<i>Subtotal – Adult</i>	<i>90,954</i>	<i>89,065</i>	<i>86,788</i>	<i>1,889</i>	<i>2.1%</i>	○	<i>4,166</i>	<i>4.8%</i>	●
Pediatric Medical and Surgical	9,726	12,202	11,913	(2,476)	-20.3%	●	(2,187)	-18.4%	●
Pediatric Critical Care	14,035	13,838	13,463	197	1.4%	○	572	4.2%	●
Pediatric Psych	2,560	2,477	2,413	83	3.4%	●	147	6.1%	●
<i>Subtotal – Pediatrics</i>	<i>26,321</i>	<i>28,517</i>	<i>27,789</i>	<i>(2,196)</i>	<i>-7.7%</i>	●	<i>(1,468)</i>	<i>-5.3%</i>	●
TOTAL	117,275	117,582	114,577	(307)	-0.3%	○	2,698	2.4%	○

 Greater than 2.5% Favorable
  Neutral
  Greater than 2.5% Unfavorable

Case Mix Index



Total Surgeries – by Clinical Department

Fiscal Year to Date December 2017

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	Variance to Budget %	Variance to Prior Year	Variance to Prior Year %
Dentistry	493	545	489	(52)	-9.5% ●	4	0.8% ○
General Surgery	4,324	4,535	4,009	(211)	-4.7% ●	315	7.9% ●
Gynecology	1,016	1,102	897	(86)	-7.8% ●	119	13.3% ●
Neurosurgery	1,681	1,781	1,678	(100)	-5.6% ●	3	0.2% ○
Ophthalmology	1,951	2,051	1,902	(100)	-4.9% ●	49	2.6% ●
Orthopedics	3,851	4,141	3,542	(290)	-7.0% ●	309	8.7% ●
Otolaryngology	1,504	1,540	1,654	(36)	-2.3% ○	(150)	-9.1% ●
Radiology – Interventional	66	80	55	(14)	-17.5% ●	11	20.0% ●
Urology w/ Procedure Ste.	1,527	1,648	1,505	(121)	-7.3% ●	22	1.5% ○
Other	25	130	47	(105)	-80.8% ●	(22)	-46.8% ●
Total	16,438	17,553	15,778	(1,115)	-6.4% ●	660	4.2% ●
Solid Organ Transplants	184	166	186	18	10.8% ●	(2)	-1.1% ○

 Greater than 2.5% Favorable
  Neutral
  Greater than 2.5% Unfavorable

Inpatient Surgeries – by Clinical Department

Fiscal Year to Date December 2017

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	Variance to Budget	%	Variance to Prior Year	Variance to Prior Year	%
Dentistry	205	218	207	(13)	-6.0%	●	(2)	-1.0%	○
General Surgery	2,972	3,154	2,783	(182)	-5.8%	●	189	6.8%	●
Gynecology	422	454	404	(32)	-7.0%	●	18	4.5%	●
Neurosurgery	1,403	1,478	1,371	(75)	-5.1%	●	32	2.3%	○
Ophthalmology	134	147	117	(13)	-8.8%	●	17	14.5%	●
Orthopedics	1,976	2,134	1,715	(158)	-7.4%	●	261	15.2%	●
Otolaryngology	369	390	426	(21)	-5.4%	●	(57)	-13.4%	●
Radiology – Interventional	64	74	51	(10)	-13.5%	●	13	25.5%	●
Urology <i>w/ Procedure Ste.</i>	396	449	471	(53)	-11.8%	●	(75)	-15.9%	●
Other	2	10	6	(8)	-80.0%	●	(4)	-66.7%	●
Total	7,943	8,508	7,551	(565)	-6.6%	●	392	5.2%	●
Solid Organ Transplants	184	166	186	18	10.8%	●	(2)	-1.1%	○

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Outpatient Surgeries – by Clinical Department

Fiscal Year to Date December 2017

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	Variance to Budget	%	Variance to Prior Year	Variance to Prior Year	%
Dentistry	288	327	282	(39)	-11.9%	●	6	2.1%	○
General Surgery	1,352	1,381	1,226	(29)	-2.1%	○	126	10.3%	●
Gynecology	594	648	493	(54)	-8.3%	●	101	20.5%	●
Neurosurgery	278	303	307	(25)	-8.3%	●	(29)	-9.4%	●
Ophthalmology	1,817	1,904	1,785	(87)	-4.6%	●	32	1.8%	○
Orthopedics	1,875	2,007	1,827	(132)	-6.6%	●	48	2.6%	●
Otolaryngology	1,135	1,150	1,228	(15)	-1.3%	○	(93)	-7.6%	●
Radiology – Interventional	2	6	4	(4)	-66.7%	●	(2)	-50.0%	●
Urology <i>w/ Procedure Ste.</i>	1,131	1,199	1,034	(68)	-5.7%	●	97	9.4%	●
Other	23	120	41	(97)	-80.8%	●	(18)	-43.9%	●
Total	8,495	9,045	8,227	(550)	-6.1%	●	268	3.3%	●

 Greater than 2.5% Favorable
  Neutral
  Greater than 2.5% Unfavorable

Emergency Department

Fiscal Year to Date December 2017

Operating Review (YTD)	Actual	Budget	Prior Year	Variance to Budget	Variance to Budget	% Variance to Budget	Variance to Prior Year	Variance to Prior Year	% Variance to Prior Year
ED Visits	29,942	30,613	30,215	(671)	-2.2%	○	(273)	-0.9%	○
ED Admits	10,375	10,273	9,924	102	1.0%	○	451	4.5%	●
ED Conversion Factor	34.7%	33.6%	32.8%		3.3%	●		5.8%	●
ED Admits / Total Admits	58.8%	58.1%	58.3%		1.2%	○		0.9%	○

 Greater than 2.5% Favorable
  Neutral
  Greater than 2.5% Unfavorable

Total Clinic Visits by Location

Fiscal Year to Date December 2017

Operating Review (YTD)	FY18 ACTUAL				FY17 ACTUAL*				Variance to Prior Year	%	
	On-Site	IRL	Other Off-Site	Total	On-Site	IRL	Other Off-Site	Total			
FAMILY MEDICINE	15,967	9,020	57,582	82,569	21,189	5,902	61,089	88,180	(5,611)	-6.4%	●
GENERAL INTERNAL MEDICINE		14,690		14,690		13,551		13,551	1,139	8.4%	●
PEDIATRICS		11,277	16,499	27,776		11,088	5,412	16,500	11,276	68.3%	●
<i>SUBTOTAL: PRIMARY CARE</i>	<i>15,967</i>	<i>34,987</i>	<i>74,081</i>	<i>125,035</i>	<i>21,189</i>	<i>30,541</i>	<i>66,501</i>	<i>118,231</i>	<i>6,804</i>	<i>5.8%</i>	●
ANESTHESIA	3,624	228		3,852	3,365	160		3,525	327	9.3%	●
CTR DISABILITIES & DEVELOPMENT	5,312			5,312	5,199			5,199	113	2.2%	○
CTR FOR DIGESTIVE DISEASES	11,883	3,349		15,232	10,418	2,636		13,054	2,178	16.7%	●
CLINICAL CANCER CENTER	28,983	1,387	3,075	33,445	27,371	1,248		28,619	4,826	16.9%	●
DERMATOLOGY	12,698	5,088	3,308	21,094	11,401	4,874	1,407	17,682	3,412	19.3%	●
GENERAL SURGERY	11,002		952	11,954	11,546		1,027	12,573	(619)	-4.9%	●
HOSPITAL DENTISTRY	9,044			9,044	8,894			8,894	150	1.7%	○
INTERNAL MEDICINE	16,223	4,843		21,066	15,400	4,503		19,903	1,163	5.8%	●
NEUROLOGY	7,633	76		7,709	8,268			8,268	(559)	-6.8%	●
NEUROSURGERY	7,146			7,146	6,936			6,936	210	3.0%	●
OBSTETRICS/GYNECOLOGY	29,591	11,163	4,324	45,078	30,264	11,222		41,486	3,592	8.7%	●
OPHTHALMOLOGY	33,308	5,361		38,669	31,916	5,229	392	37,537	1,132	3.0%	●
ORTHOPEDICS	38,625	2,594	230	41,449	36,176	1,106	52	37,334	4,115	11.0%	●
OTOLARYNGOLOGY	10,092	3,704		13,796	9,841	3,650		13,491	305	2.3%	○
PEDIATRICS	30,472	2,531		33,003	31,472	1,529		33,001	2	0.0%	○
PSYCHIATRY	21,920	11		21,931	20,590	19		20,609	1,322	6.4%	●
UROLOGY	4,484	7,534		12,018	4,127	6,583		10,710	1,308	12.2%	●
UI HEART CTR	10,835	7,095		17,930	9,297	6,170		15,467	2,463	15.9%	●
<i>SUBTOTAL: SPECIALTY CARE</i>	<i>292,875</i>	<i>54,964</i>	<i>11,889</i>	<i>359,728</i>	<i>282,481</i>	<i>48,929</i>	<i>2,878</i>	<i>334,288</i>	<i>25,440</i>	<i>7.6%</i>	●
TOTAL	308,842	89,951	85,970	484,763	303,670	79,470	69,379	452,519	32,244	7.1%	●

● Greater than 2.5% Favorable

○ Neutral

● Greater than 2.5% Unfavorable

* from ongoing operations

Pediatric Clinic Visits by Location

Fiscal Year to Date December 2017

Operating Review (YTD)	FY18 ACTUAL				FY17 ACTUAL*				Variance to Prior Year	%	
	On-Site	IRL	Other Off-Site	Total	On-Site	IRL	Other Off-Site	Total			
FAMILY MEDICINE	1,863	401	12,013	14,277	2,311	203	11,987	14,501	(224)	-1.5%	○
GENERAL INTERNAL MEDICINE		39		39		11		11	28	254.5%	●
PEDIATRICS		10,960	16,499	27,459		10,843	5,412	16,255	11,204	68.9%	●
<i>SUBTOTAL: PRIMARY CARE</i>	<i>1,863</i>	<i>11,400</i>	<i>28,512</i>	<i>41,775</i>	<i>2,311</i>	<i>11,057</i>	<i>17,399</i>	<i>30,767</i>	<i>11,008</i>	<i>35.8%</i>	●
ANESTHESIA	344	3		347	422			422	(75)	-17.8%	●
CTR DISABILITIES & DEVELOPMENT	5,312			5,312	5,199			5,199	113	2.2%	○
CTR FOR DIGESTIVE DISEASES	9	1		10	7	1		8	2	25.0%	●
CLINICAL CANCER CENTER	32			32	71			71	(39)	-54.9%	●
DERMATOLOGY	986	1,197		2,183	774	967		1,741	442	25.4%	●
GENERAL SURGERY	723			723	797			797	(74)	-9.3%	●
HOSPITAL DENTISTRY	1,063			1,063	1,163			1,163	(100)	-8.6%	●
INTERNAL MEDICINE	38	186		224	64	123		187	37	19.8%	●
NEUROLOGY	269			269	256			256	13	5.1%	●
NEUROSURGERY	1,204			1,204	1,123			1,123	81	7.2%	●
OBSTETRICS/GYNECOLOGY	447	58		505	419	82		501	4	0.8%	○
OPHTHALMOLOGY	5,542	344		5,886	5,410	345		5,755	131	2.3%	○
ORTHOPEDICS	7,084	91		7,175	6,586	35		6,621	554	8.4%	●
OTOLARYNGOLOGY	1,759	2,096		3,855	1,847	2,242		4,089	(234)	-5.7%	●
PEDIATRICS	26,176	2,065		28,241	27,408	1,353		28,761	(520)	-1.8%	○
PSYCHIATRY	6,114			6,114	5,437			5,437	677	12.5%	●
UROLOGY	110	1,339		1,449	108	1,326		1,434	15	1.0%	○
UI HEART CTR	13	71		84	9	37		46	38	82.6%	●
<i>SUBTOTAL: SPECIALTY CARE</i>	<i>57,225</i>	<i>7,451</i>		<i>64,676</i>	<i>57,100</i>	<i>6,511</i>		<i>63,611</i>	<i>1,065</i>	<i>1.7%</i>	○
TOTAL	59,088	18,851	28,512	106,451	59,411	17,568	17,399	94,378	12,073	12.8%	●

● Greater than 2.5% Favorable

○ Neutral

● Greater than 2.5% Unfavorable

* from ongoing operations

Adult Clinic Visits by Location

Fiscal Year to Date December 2017

Operating Review (YTD)	FY18 ACTUAL				FY17 ACTUAL*				Variance to Prior Year	%	
	On-Site	IRL	Other Off-Site	Total	On-Site	IRL	Other Off-Site	Total			
FAMILY MEDICINE	14,104	8,619	45,569	68,292	18,878	5,699	49,102	73,679	(5,387)	-7.3%	●
GENERAL INTERNAL MEDICINE		14,651		14,651		13,540		13,540	1,111	8.2%	●
PEDIATRICS		317		317		245		245	72	29.4%	●
<i>SUBTOTAL: PRIMARY CARE</i>	<i>14,104</i>	<i>23,587</i>	<i>45,569</i>	<i>83,260</i>	<i>18,878</i>	<i>19,484</i>	<i>49,102</i>	<i>87,464</i>	<i>(4,204)</i>	<i>-4.8%</i>	●
ANESTHESIA	3,280	225		3,505	2,943	160		3,103	402	13.0%	●
CTR FOR DIGESTIVE DISEASES	11,874	3,348		15,222	10,411	2,635		13,046	2,176	16.7%	●
CLINICAL CANCER CENTER	28,951	1,387	3,075	33,413	27,300	1,248		28,548	4,865	17.0%	●
DERMATOLOGY	11,712	3,891	3,308	18,911	10,627	3,907	1,407	15,941	2,970	18.6%	●
GENERAL SURGERY	10,279		952	11,231	10,749		1,027	11,776	(545)	-4.6%	●
HOSPITAL DENTISTRY	7,981			7,981	7,731			7,731	250	3.2%	●
INTERNAL MEDICINE	16,185	4,657		20,842	15,336	4,380		19,716	1,126	5.7%	●
NEUROLOGY	7,364	76		7,440	8,012			8,012	(572)	-7.1%	●
NEUROSURGERY	5,942			5,942	5,813			5,813	129	2.2%	○
OBSTETRICS/GYNECOLOGY	29,144	11,105	4,324	44,573	29,845	11,140		40,985	3,588	8.8%	●
OPHTHALMOLOGY	27,766	5,017		32,783	26,506	4,884	392	31,782	1,001	3.1%	●
ORTHOPEDICS	31,541	2,503	230	34,274	29,590	1,071	52	30,713	3,561	11.6%	●
OTOLARYNGOLOGY	8,333	1,608		9,941	7,994	1,408		9,402	539	5.7%	●
PEDIATRICS	4,296	466		4,762	4,064	176		4,240	522	12.3%	●
PSYCHIATRY	15,806	11		15,817	15,153	19		15,172	645	4.3%	●
UROLOGY	4,374	6,195		10,569	4,019	5,257		9,276	1,293	13.9%	●
UI HEART CTR	10,822	7,024		17,846	9,288	6,133		15,421	2,425	15.7%	●
<i>SUBTOTAL: SPECIALTY CARE</i>	<i>235,650</i>	<i>47,513</i>	<i>11,889</i>	<i>295,052</i>	<i>225,381</i>	<i>42,418</i>	<i>2,878</i>	<i>270,677</i>	<i>24,375</i>	<i>9.0%</i>	●
TOTAL	249,754	71,100	57,458	378,312	244,259	61,902	51,980	358,141	20,171	5.6%	●

● Greater than 2.5% Favorable

○ Neutral

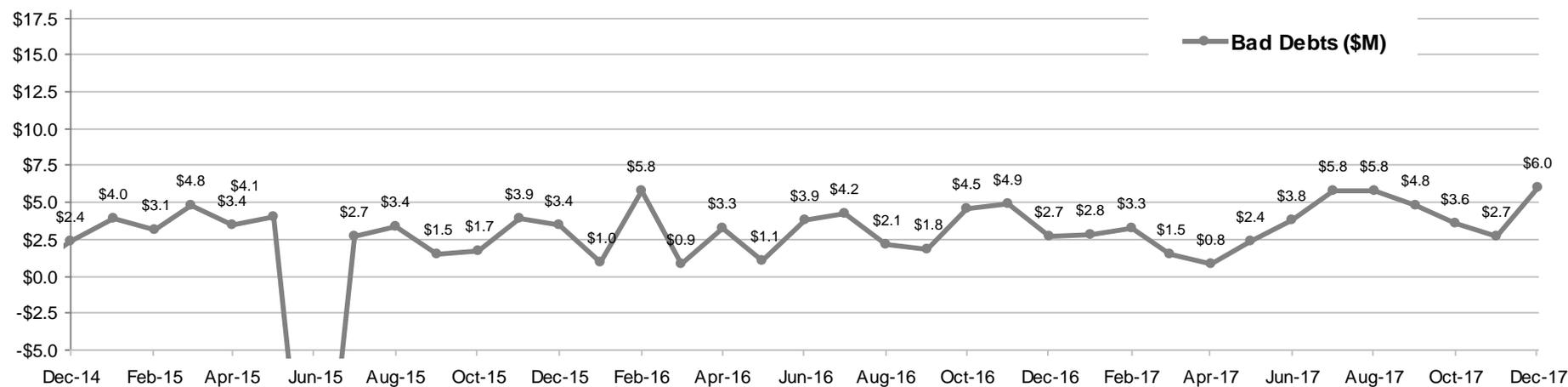
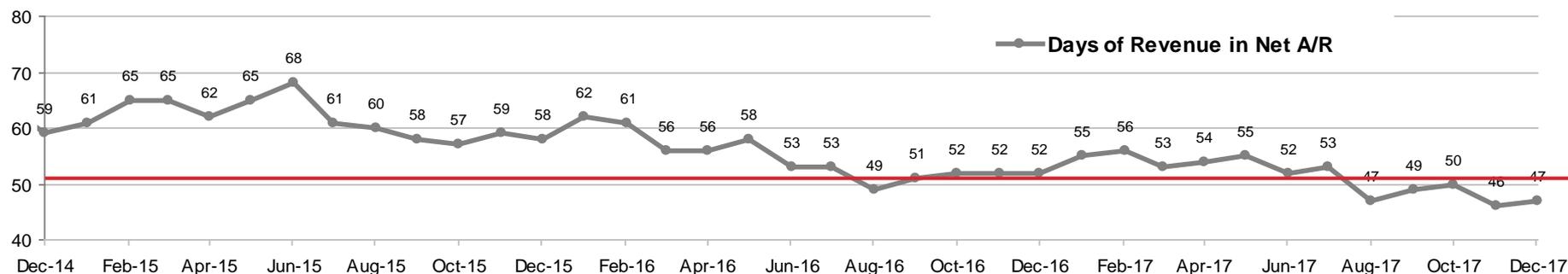
● Greater than 2.5% Unfavorable

* from ongoing operations

Comparative Accounts Receivable

At December 31, 2017

	June 30, 2016	June 30, 2017	December 31, 2017
Net Accounts Receivable	\$210,723,995	\$210,781,374	\$208,139,644
Net Days in AR	53	52	47



Comparative Financial Results

Fiscal Year to Date December 2017, Dollars in Thousands

NET REVENUES	Actual	Budget	Prior Year	Variance to Budget	Variance to Budget %	Variance to Prior Year	Variance to Prior Year %
Patient Revenue	\$787,044	\$783,598	\$721,416	\$3,446	0.4%	\$65,628	9.1%
Other Operating Revenue	24,818	25,154	24,822	(336)	-1.3%	(4)	0.0%
Total Revenue	\$811,862	\$808,752	\$746,238	\$3,110	0.4%	\$65,624	8.8%
EXPENSES							
Salaries and Wages	\$386,892	\$395,482	\$360,840	(\$8,590)	-2.2%	\$26,052	7.2%
General Expenses	366,231	348,748	320,748	17,483	5.0%	45,483	14.2%
Operating Expense before Capital	\$753,123	\$744,230	\$681,588	\$8,893	1.2%	\$71,535	10.5%
Cash Flow Operating Margin	\$58,739	\$64,522	\$64,650	(\$5,783)	-9.0%	(\$5,911)	-9.1%
Capital- Depreciation and Amortization	50,319	49,003	39,594	1,316	2.7%	10,725	27.1%
Total Operating Expense	\$803,442	\$793,233	\$721,182	\$10,209	1.3%	\$82,260	11.4%
Operating Income	\$8,420	\$15,519	\$25,056	(\$7,099)	-45.7%	(\$16,636)	-66.4%
Operating Margin %	1.0%	1.9%	3.4%	-0.9%	-0.9%	-2.4%	-2.4%
Gain (Loss) on Investments	19,651	6,043	(3,980)	13,608	225.2%	23,631	593.7%
Other Non-Operating	(6,092)	(6,777)	(2,485)	685	10.1%	(3,607)	-145.2%
Net Income	21,979	\$14,785	\$18,591	\$7,194	48.7%	\$3,388	18.2%
Net Margin %	2.7%	1.8%	2.5%	0.9%	0.9%	0.2%	0.2%

* Gain/(Loss) on Investments based on information available at close. Final investment return for this period is reflected in Fiscal Year to Date returns in the subsequent reporting cycle.



FACULTY PRESENTATION

Theranostics: Concepts and Opportunities for Cancer Treatment

Michael K. Schultz, PhD

*Assistant Professor of Radiology, Radiation Oncology, and Chemistry
Chief Science Officer, Viewpoint Molecular Targeting, Inc.*

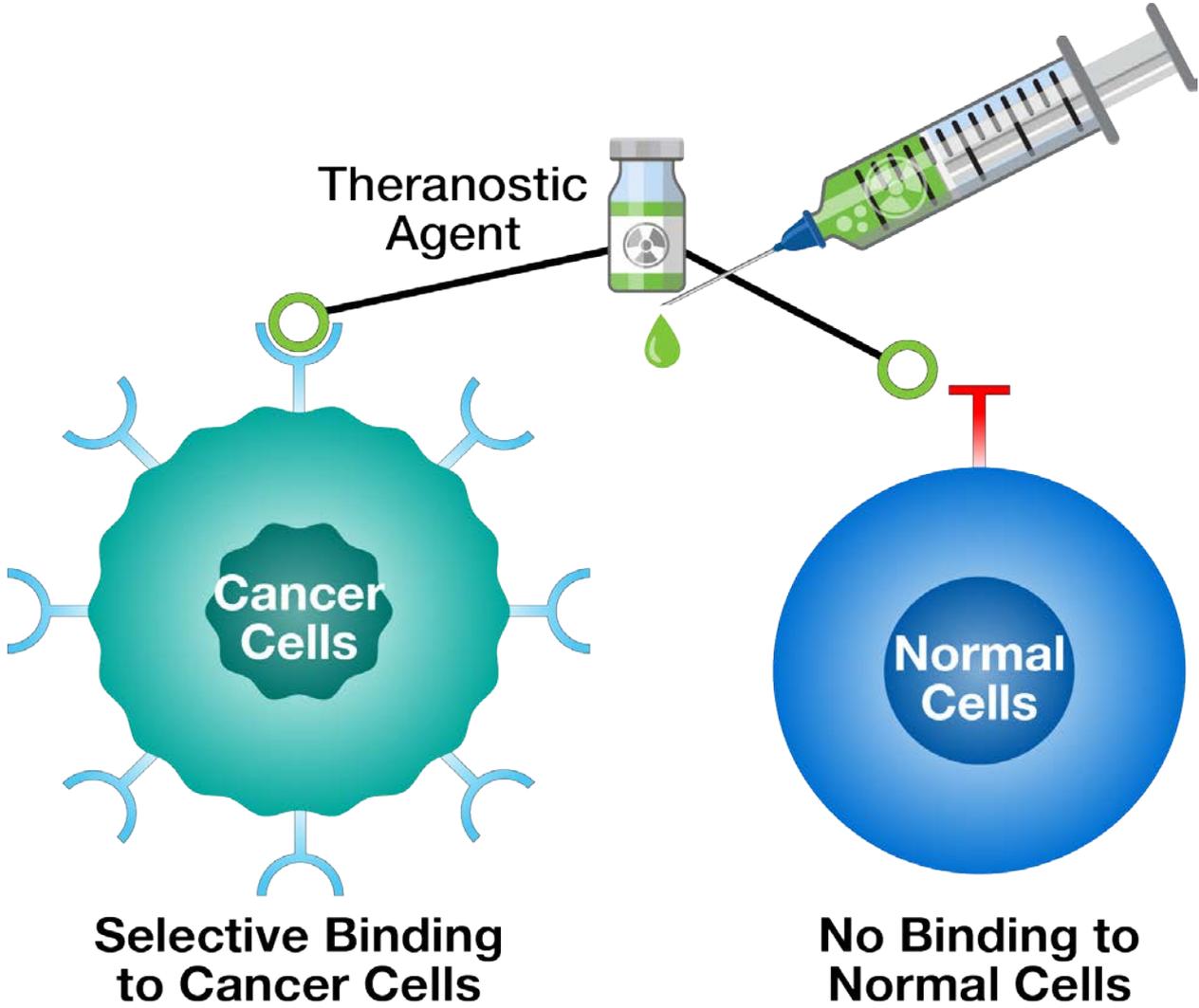
Theranostics—Concepts

Combination of two words:

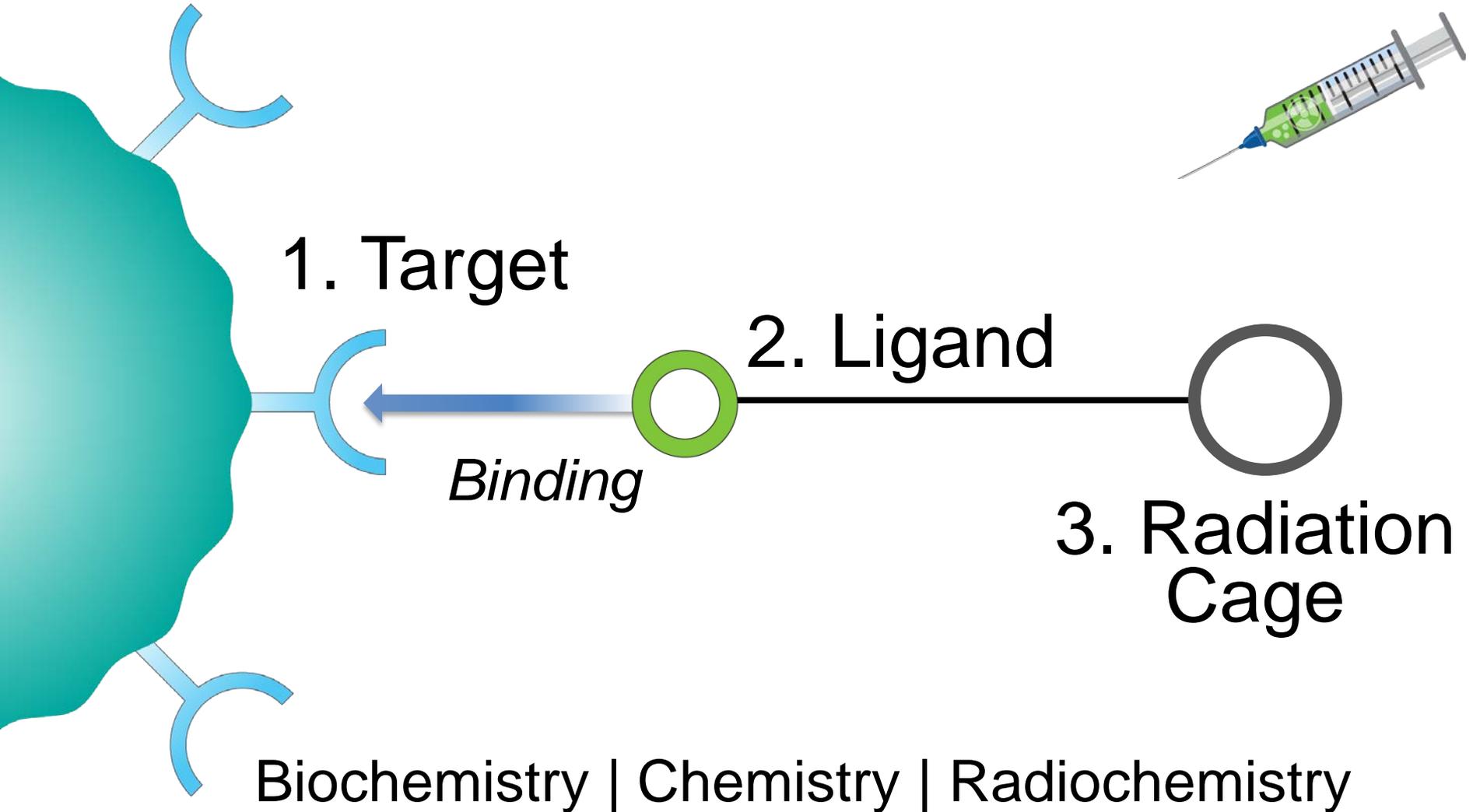
- **Therapeutic** + **Diagnostic**
- Sometimes referred to as Theragnostics and Diapeutics
- Use of molecules that are tagged with radioactive atoms to diagnose disease in individuals and then use the same molecule (or very closely related) to treat the disease
- IV-injectable “radiopharmaceuticals”



Targeting Cancer Cells

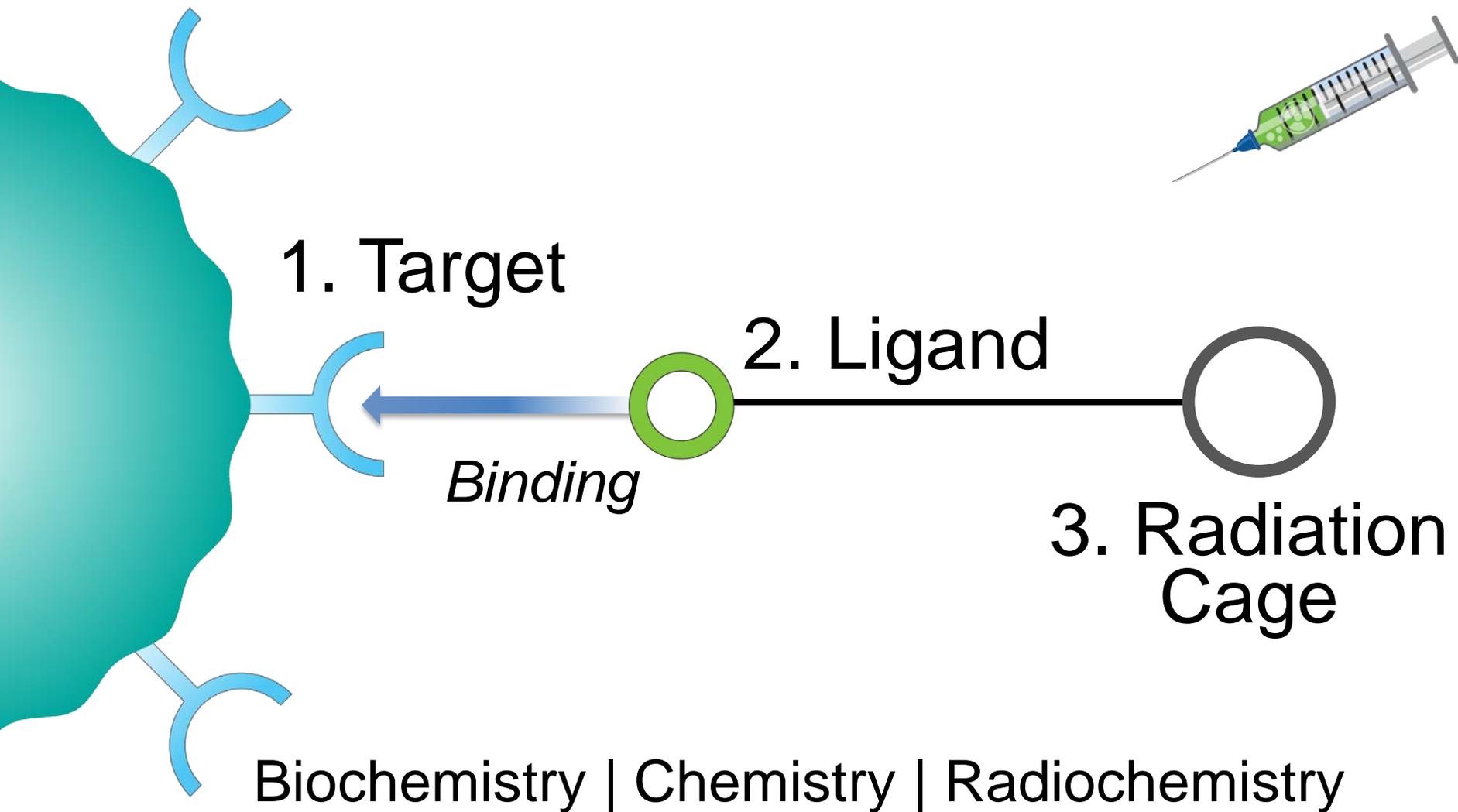


Designing Theranostics

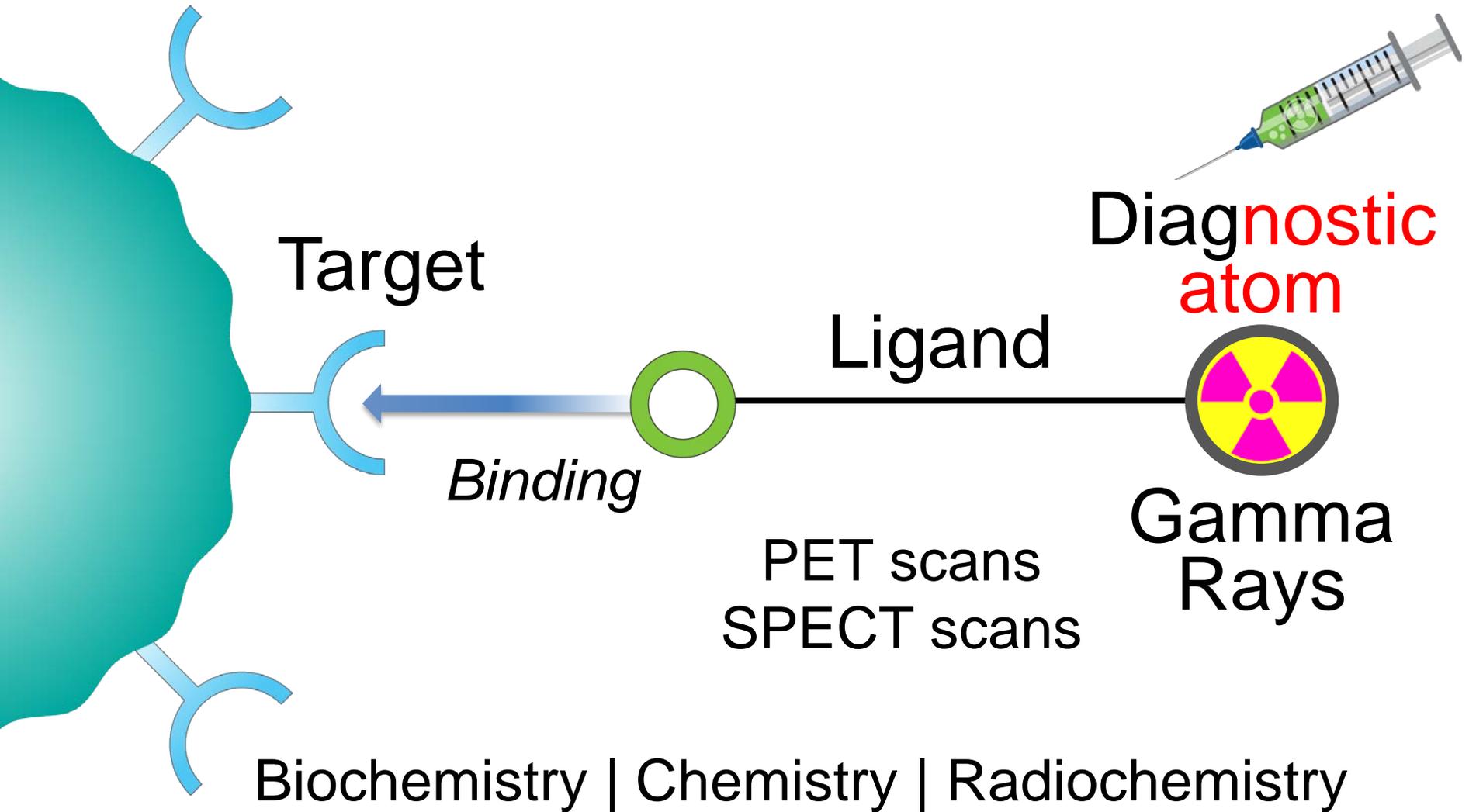


Biochemistry | Chemistry | Radiochemistry

Designing Theranostics

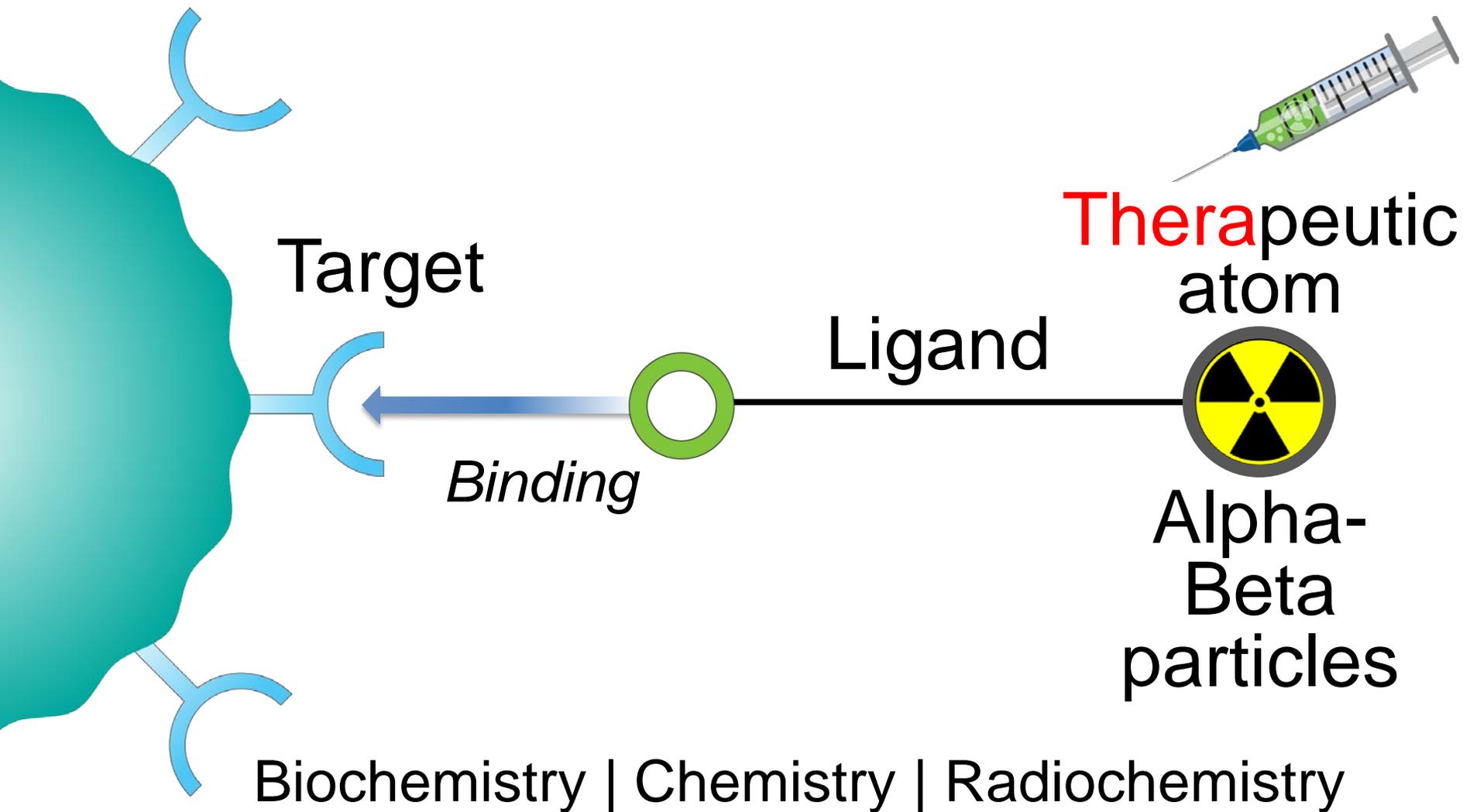


Designing Theranostics



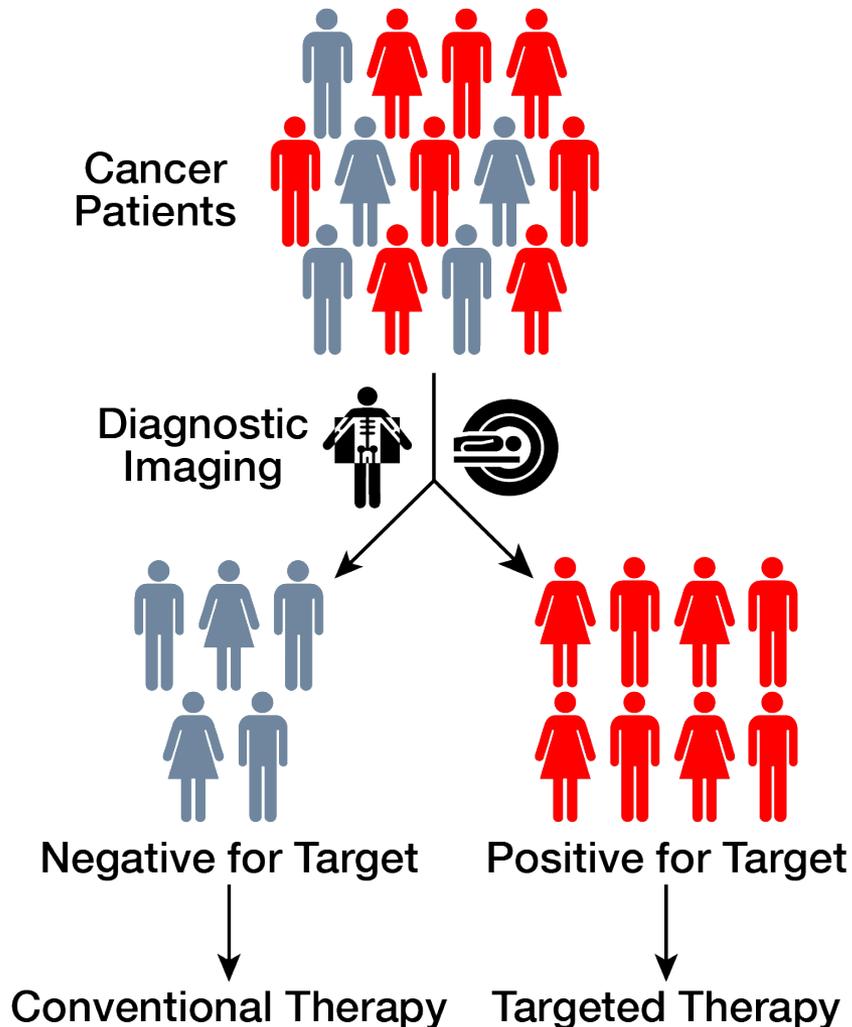
Biochemistry | Chemistry | Radiochemistry

Designing Theranostics



Biochemistry | Chemistry | Radiochemistry

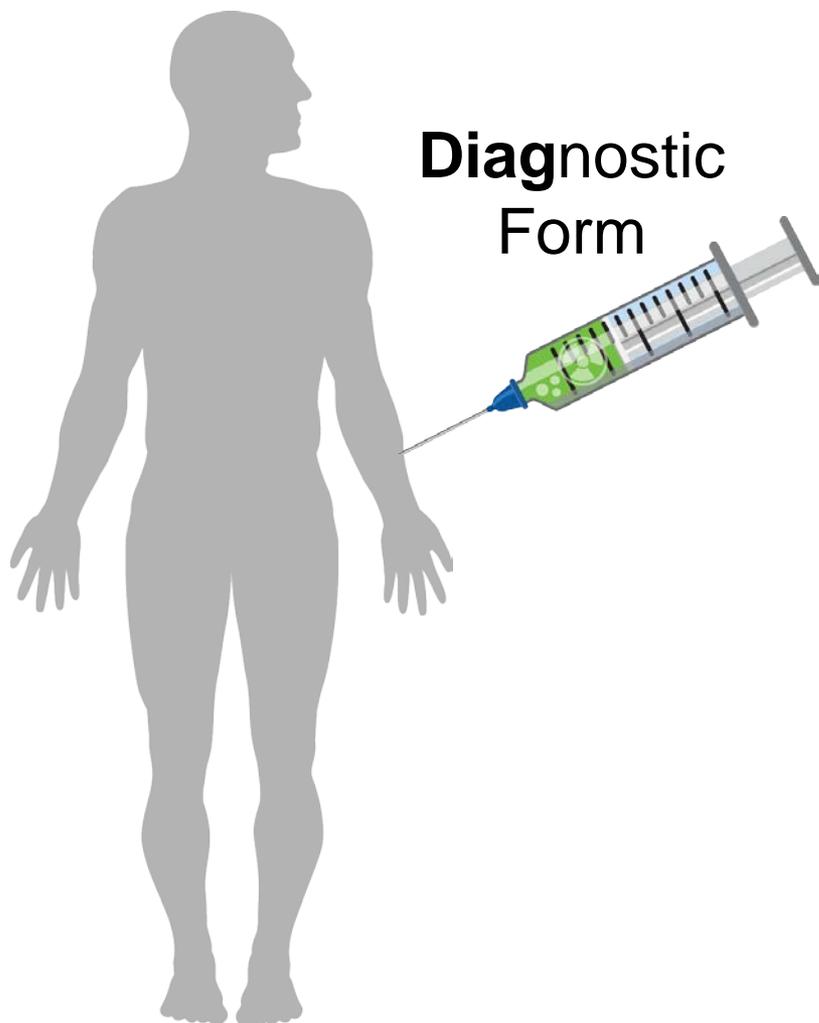
Theranostics—Concepts



Value for Patients and Providers:

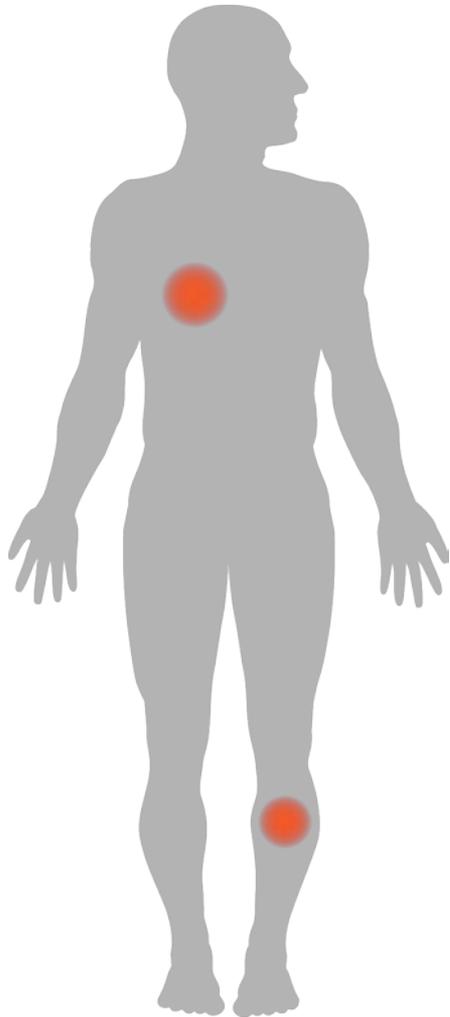
- Use **diagnostic** imaging to select patients that have potential to benefit from the partner therapy.
- Use **diagnostic** imaging to determine therapy dose.
- Prevents use of therapy for patients who are unlikely to benefit.

Theranostics—Patient Care



- Patient presents with symptoms or other tests that indicate a particular cancer.
- Patient is injected with the diagnostic form.
- A medical scan is performed after a time for accumulation in the tumors.
- A dose plan is made by doctors.

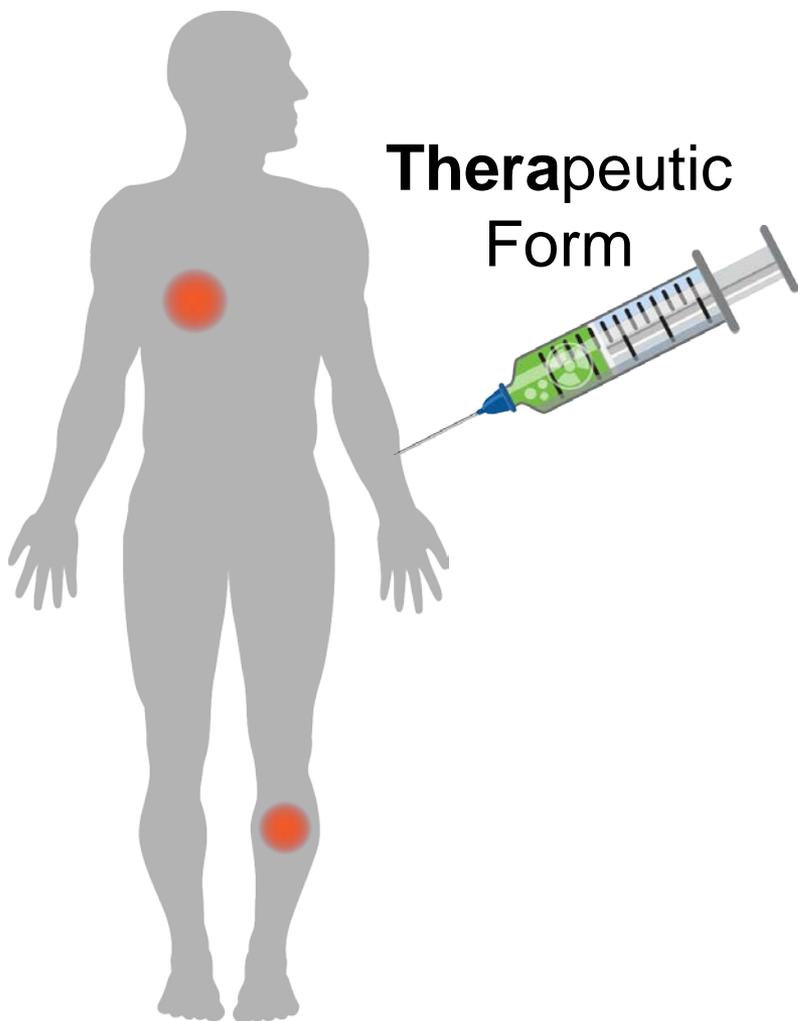
Theranostics—Patient Care



Tumors
Identified

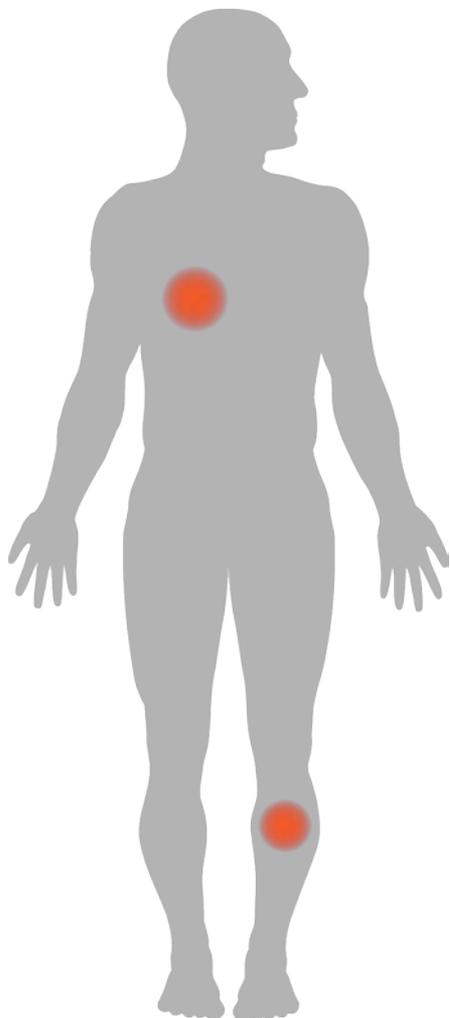
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Theranostics—Patient Care



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- Patient is treated with the therapeutic form.

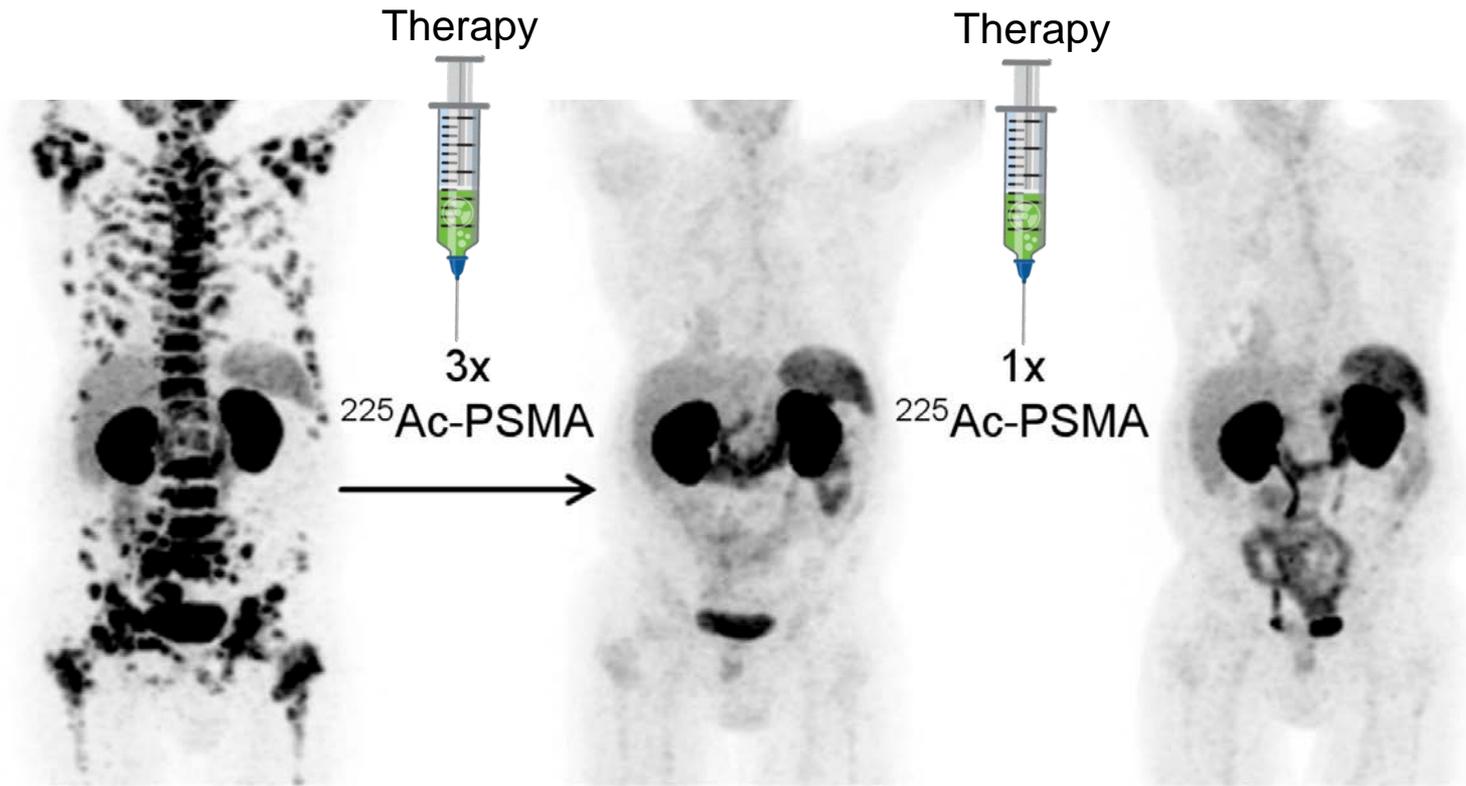
Theranostics—Patient Care



- Patient presents with symptoms or other tests that indicate a particular cancer.
- Patient is injected with the diagnostic form.
- A medical scan is performed after a time for accumulation in the tumors.
- A dose plan is made by doctors.
- Patient is treated with the therapeutic form.
- Response can be monitored with diagnostic form.



Theranostics—Clinical Example



Metastatic Prostate Cancer Patient

Diagnostic Scans

Kratochwil et al. J Nucl Med 2016;57:1941-1944

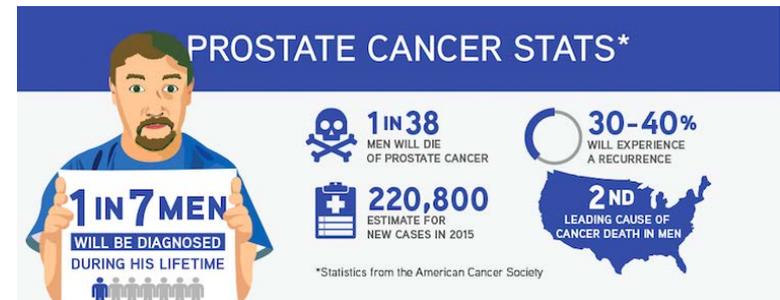
Theranostics—Iowa Leadership

Neuroendocrine Tumor Cancer

- \$11M (NIH) Specialized Program in Research Excellence
- Referrals Nationwide
- European Center of Excellence Designation

Prostate Cancer (PSMA Program)

- Leading nationally in clinical PSMA theranostics
- Clinical Imaging Trials underway
- Participating in therapy trials



Attracting companies (SOM Theranostics)

- Swiss startup (\$650k; Swiss Gov't)
- Led by former Novartis executives
- Relocating to UI Research Park
- Novartis Theranostics Center of Excellence (in Iowa?)



Theranostics—Big Pharma



**AAA, Inc.
purchased by
Novartis (2017)**

- **\$3.9 billion**
- Neuroendocrine,
Prostate Cancers



**Algeta, ASA
purchased by
Bayer (2013)**

- **\$2.9 billion**
- End stage
prostate cancer



**Octreopharm
purchased by
Ipsen Pharm.
(2014)**

- **\$55 million**
- Neuroendocrine
cancer



**Fusion
Pharmaceuticals
(Toronto start up)
2017**

- **\$46 million
(Algeta investors;
oversub'd Series
A)**
- Lung and colon
cancers

Theranostics—Entrepreneurship



- University of Iowa Start-up (UI IP)
- Focus - Metastatic melanoma (cancer)
- \$3M NIH SBIRs (Phase I and II)
- IEDA Demo; IICORPS; Wellmark; UI pitch competitions
- Preclinical stage; IND enabling R&D



**Steve Kelly,
(new CEO, Boston)**

Led Biovex to acquisition
by Amgen
\$425M cash; \$575M in
milestones



Founders – NCI ICORPS



Frances L. Johnson MD

Co-founder Viewpoint
Chief Medical Officer
University of Washington MD
UCSF Residency
Stanford Faculty
University of Iowa Faculty
Co-founder CareDx (previously)

Thank You

University of Iowa Health Care

