September 2, 2014

## T2 Biosystems Inc

# Revolutionary Technology for Sepsis Diagnosis; Initiate at Equal-weight; PT $18.00

T2 is pursuing a large unmet need in sepsis and expects FDA approval of its Candida assay by E14. We are comfortable with our $115MM 2017e revenue, but the ramp has risk. Upside remains to the bull case, but stock up 100% since pricing, initiate Equal-weight.

**Serving a critical unmet need:** Sepsis is the most costly hospital-treated condition, driving $20BN of US hospital costs per year and a 30% mortality rate among the 1.35MM patients diagnosed annually out of 6.0-8.0MM patients deemed high-risk. T2 testing of ~6.75MM high-risk patients in the US implies a TAM of $2BN accounting only for T2 panel revenues.

**A game-changer in rapid diagnosis:** T2Dx offers: (1) speed, providing results from a blood sample in 3 hours — beating competing technologies by 24+ hours and curbing drug spend on uninfected patients; (2) ease of use, eliminating manual prep that introduces risk of cross-contamination; and (3) clinical validation, with data demonstrating +80% sensitivity and +90% specificity. We forecast sales of ~$115MM in 2017, reflecting penetration into only ~75 US hospitals out of 450 treating >3,000 high-risk patients per year. We believe T2 has 2-3+ years of runway in the US before a competing technology could emerge yielding diagnoses in <24 hours.

**Long horizon, but worth the wait:** Given the critical bacterial panel launch is still ~2 years away, we value T2 on 2017e revenues using a ~4.0 EV/Sales multiple, below fast-growing diagnostic peers with demonstrated commercial traction. Assuming a 10% discount rate on '17 financials, we arrive at a 12-month target price of $18.00 (19% discount to current price, but 64% upside to IPO price) and assign an Equal-weight rating. Our bull case $45 valuation (104% upside) assumes penetration of >350 sites in 2020 with support from the '16 bacterial panel launch and revenues of ~$300mn.

**Risks are more about the adoption curve:** T2's platform is not yet FDA-approved, and while risk remains we expect the Candida approval in late 2014. Competition appears to be years away, but large players are developing molecular platforms that improve upon their current offerings. Uptake is the key variable, tied to lab directors' and steering committees' evaluation, timelines for changing the standard of care, and a more limited assay menu prior to the bacterial panel launch in 2H16.

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**Life Science Tools & Diagnostics** / United States of America

| | |
|---|---|
| **Stock Rating** | **Equal-weight** |
| **Industry View** | **In-Line** |
| **Price target** | **$18.00** |
| Shr price, close (Aug 29, 2014) | $23.21 |
| Mkt cap, curr (mm) | $55,714 |
| 52-Week Range | $24.50-13.40 |

| **Fiscal Year Ending** | **12/13** | **12/14e** | **12/15e** | **12/16e** |
|---|---|---|---|---|
| Co.-rpt'd rev ($mm)* | - | - | - | - |
| **ModelWare EPS ($)** | **(11.60)** | **(10.78)** | **(7.07)** | **(6.27)** |
| **P/E** | **NM** | **NM** | **NM** | **NM** |
| Div yld (%) | - | 0.0 | 0.0 | 0.0 |

Unless otherwise noted, all metrics are based on Morgan Stanley ModelWare framework
* = GAAP or approximated based on GAAP
e = Morgan Stanley Research estimates

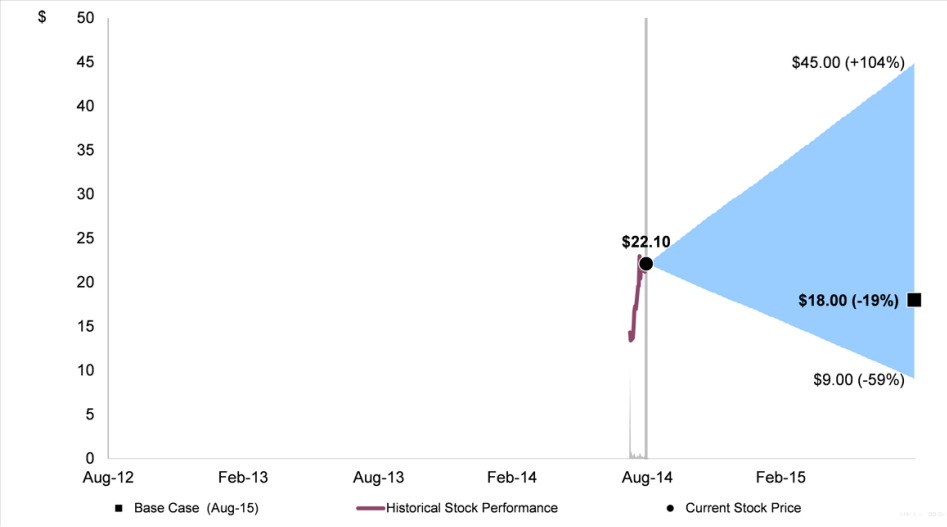
**QUARTERLY MODELWARE EPS ($)**

| **Quarter** | **2013** | **2014e Prior** | **2014e Current** | **2015e Prior** | **2015e Current** |
|---|---|---|---|---|---|
| Q1 | - | - | (3.57)a | - | (1.43) |
| Q2 | - | - | (4.90) | - | (1.58) |
| Q3 | - | - | (2.55) | - | (1.79) |
| Q4 | - | - | (1.71) | - | (2.27) |

e = Morgan Stanley Research estimates, a = Actual Company reported data

# Risk Reward

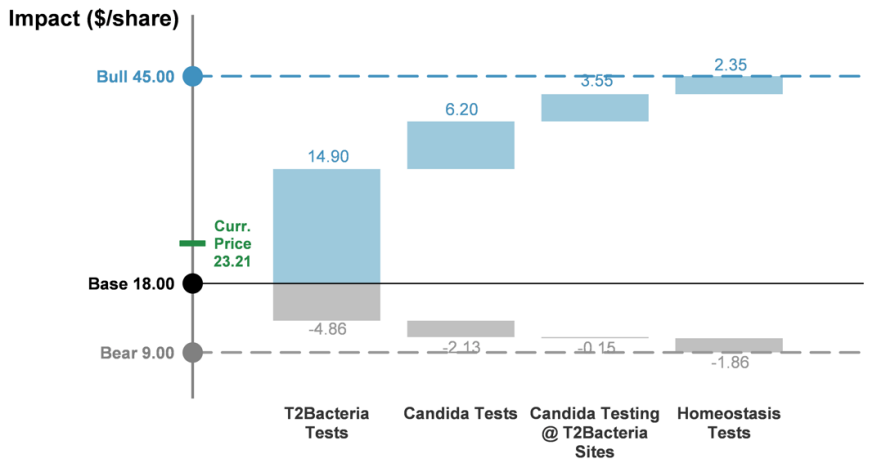
## Early Phases of a Revolution in Rapid Sepsis Diagnostics




Source: Morgan Stanley Research estimates.

| | | |
|---|---|---|
| **Price Target** | **$18.00** | Value base case 2017 revenues of $115 MM using a 3.9x EV/Sales multiple, below fast-growing diagnostic peers with demonstrated commercial traction. Assuming a fully loaded share base and 10% discount rate, we arrive at a 12-month target price |
| **Bull** | **$45** | Forecasted 2020E revenues capturing significant upside from the launches of T2Bacteria panel and hemostasis panels in 2017 leading to site expansion although gradual test price declines to ~$135 by 2020 to capture smaller-scale hospitals |
| 5.0x Bull Case 2020E Rev | | |
| **Base** | **$18** | Forecast penetration into 134 sites of top 200 hospitals by end of 2016 expanding to 253 sites (out of top 450 hospitals) by end of 2018 driven by availability of both T2Candida and T2Bacteria test panels, with pricing of ~$170 per test |
| 3.9x Base Case 2017E Rev | | |
| **Bear** | **$9** | Forecast only 90% of penetration from base case, or 121 sites with T2Candida panel and assumes T2Bacteria and hemostasis panels do not launch commercially before 2017. |
| 2.5x Bear Case 2017E Rev | | |

**Exhibit 1:** Key Value Drivers: Our Inputs and the Impact on Scenario Values




Source: Morgan Stanley Research.

### Investment Thesis

- T2 Biosystem's T2Dx system is serving a critical unmet need through its rapid diagnosis of sepsis in as little as three hours, faster by 24 hours or more than the current standard of care to curb unnecessary drug treatments for the uninfected and accelerate appropriate therapies for infected patients
- We believe T2 has at least two years of runway in the US before competition could emerge with a technology that yields a diagnosis in less than 24 hours
- We expect T2 to generate revenues of $115MM by 2017 driven by the current paradigm in sepsis diagnosis as the most costly hospital-treated condition in the US, generating $20BN of US hospital costs per year and yielding a 30% mortality rate from the 1.35MM patients diagnosed

### Key Value Drivers

- Speed, providing results from a whole blood sample in three hours — beating competing sepsis diagnosis technologies by at least 24 hours and curbing unnecessary drug treatment for uninfected patients;
- Ease of use, eliminating manual prep steps that can introduce risks of cross-contamination; and
- Clinical validation, with clinical data that demonstrates +80% sensitivity and +90% specificity.
- International expansion in 2017

### Catalysts

- FDA approval for the T2Dx and T2Candida systems by YE2014
- Successful commercial launch of T2Dx and T2Candida in the first half of 2015
- Initiation of clinical trials for T2Bacteria in the second half of 2015 with a commercial launch targeted for later 2016, adding an additional 2.0MM patients to its addressable market
- Clinical trial initiation for T2Stat and T2HemoStat in the first half of 2016

### Risks to Achieving Price Target

- Delay in FDA approval of the T2Dx system and T2Candida panel
- Slower-than-expected commercial uptake for the new diagnostic modality for sepsis testing since it

requires lab directors to add a new system to their lineup

- The launch of a competing product with a similarly distinguishable clinical profile and process timeline within the next two years
- International penetration fails to materialize

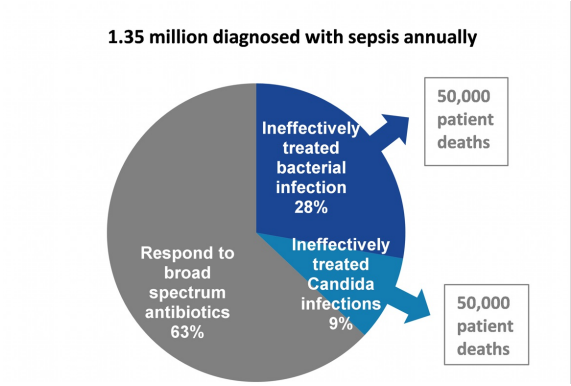
## Investment Summary

T2 is pursuing a large unmet clinical need in the markets for blood infection and hemostasis. While this market is competitive, we see the company at a 2-3 year competitive advantage and FDA approval of its first assay, candida is likely before YE14 but catalysts beyond that are tied to commercial traction. We remain comfortable with our $115 million revenue estimate in 2017e but the commercial ramp up over the next two years is not without risk. Our long-term outlook is positive and the Bull case is $45.00, but with the stock up 100% since pricing, we are initiating at Equal-weight.

### *Investment Positives*

**1) Addressing a large-scale healthcare issue:** In 2013, the U.S. Department of Health and Human Services reported that sepsis is the most expensive hospital-treated condition in the United States, with an economic burden to hospitals exceeding $20 billion annually, almost double that of heart attacks. Sepsis affects 1.5-2.0 million patients per year and kills 100,000 out of the 6.0-8.0 million who are deemed high risk. T2's rapid diagnostic solution targets both:

**Exhibit 2:** The landscape of sepsis infections




Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample (NIS), 2011.

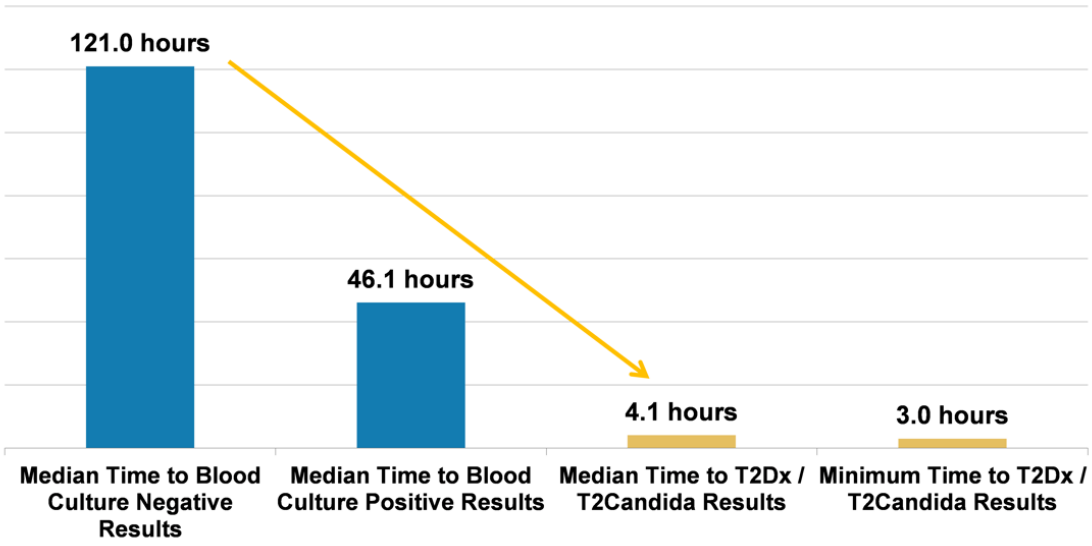
- *Economic burden on the healthcare system:* primarily driven by reducing the hospitalization time for patients; additionally, improvements in test turnaround time would also reduce drug costs, and drive cost savings via reduced antibiotic resistance, limiting downstream procedures, fewer diagnostics, lower readmissions and more effective treatment regimens
- *Suboptimal patient care:* since clinicians will be rapidly informed of the specific sepsis-causing pathogens in order to make more informed, targeted treatment decisions. Among patients with sepsis, currently less than half are treated optimally

**2) Product incentives for adoption:** T2Dx is an easy-to-use, fully automated, bench-top instrument that is capable of running a broad range of diagnostic panel types from patient sample input to result and employs miniaturized PCR (a method for amplifying DNA across several orders of magnitude) and magnetic resonance (MR) technology for the analysis of whole blood samples.

- *Speed:* T2Dx has been shown in clinical trials to identify species of candida from a whole blood sample in three hours — beating any competing technology in the sepsis diagnosis segment by at least 24 hours
- *Ease of use:* instrument eliminates the need for manual work flow steps such as pipetting that can introduce risks of cross-contamination
- *Clinical validation:* T2 has validated the candida assay in a 1,500 sample prospective study and a 300-sample contrived study, demonstrating over 80% sensitivity and over 90% specificity across a range of species of fungal infections; validating the system's analytical process takes only three hours from sample

to answer

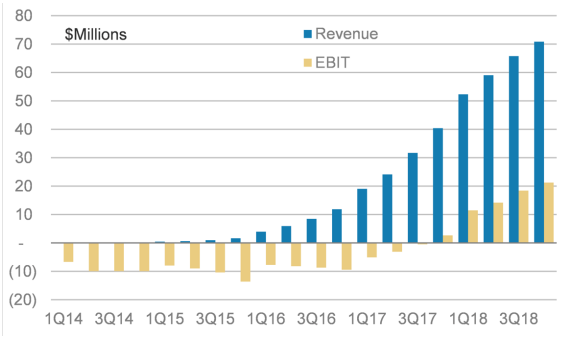
**Exhibit 3:** Time to result demonstrates potential to dramatically improve care




Source: Company data.

**3) First mover advantage:** We believe T2 is the only company employing magnetic resonance (MR) technology for this application, a technology which analyzes how water molecules react in the presence of magnetic fields and is highly sensitive to changes in a blood samples at a molecular level. Whereas competing technologies tend to rely on blood culture and in some cases polymerase chain reaction, or PCR, where 90% or more of the target can be lost. We believe MR provides a competitive advantage in situations where a rapid response is required and note the company has a substantial IP portfolio and an exclusive license from Massachusetts General Hospital for the core technology. A competing test that can produce a rapid diagnosis (under 24 hours) we believe is at least two years away.

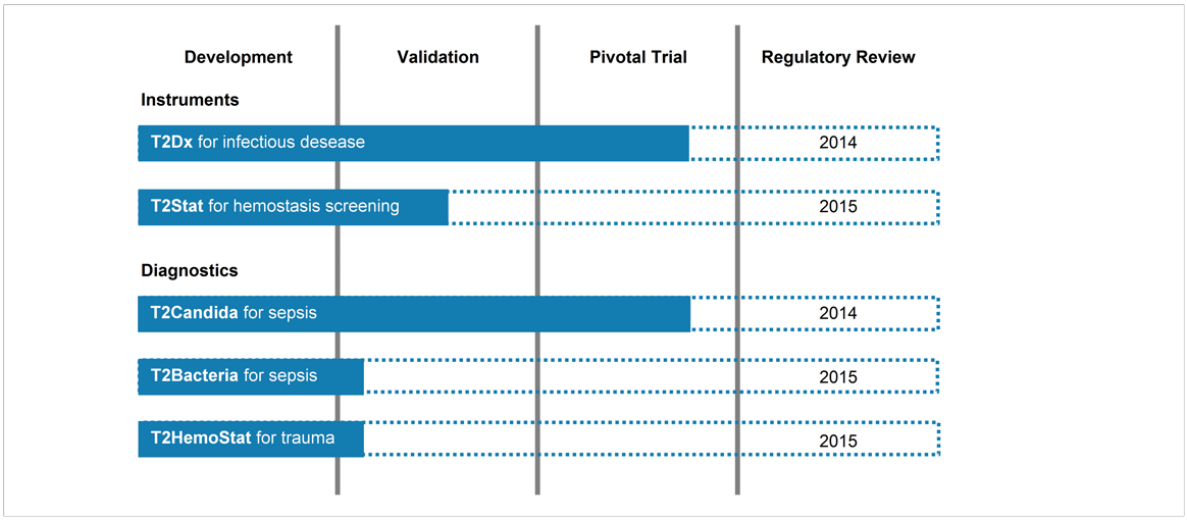
**Exhibit 4:** Forecasted EBIT and revenue




Source: Company data, Morgan Stanley Research .

**4) Planned test menu expansion:** While T2's first application is for the detection of candida, T2 expects to initiate clinical trials for T2Bacteria in the second half of 2015, rounding out the sepsis diagnosis toolkit. Bacterial infections are a more common driver of sepsis than are candida infections by at least a factor of three, making the bacterial panel a larger driver of the commercial potential of the T2Dx beginning at the time of launch in 2H16. In 2017, T2 plans to launch a new platform through a distribution partner, the smaller and simpler T2Stat platform that will offer a range of hemostasis measurements in as little as 20 minutes, including platelet function, clotting time, and clot degradation, also known as fibrinolysis.

**Exhibit 5:** T2 Bio product pipeline




Source: Company data.

## *Key Risks*

**1) The FDA approval process:** T2's timelines are long relative to publicly traded comparable diagnostic companies, in part because the regulatory approval of candida panel and the clinical validation of the bacteria panel are in process. For candida, clarity on FDA approval could be several months away and risk is associated with a delay or inability to achieve approval on first pass. For Bacteria, we forecast 41% of sales in 2018 from the T2 Bacterial platform, which is not expected to reach the market until 2016. Hemostasis is an immaterial driver prior to 2018.

**2) Commercial uptake:** T2 is focused on introducing a new diagnostic modality for sepsis testing where the gold standard has been blood based culture for decades. While the T2 proposition is powerful, the technology is novel and the selling effort could prove more time-consuming than we anticipate. Widespread adoption will almost certainly require a broader menu than the candida panel and longer-term validation of the system's ability to drive cost savings and clinical outcomes, given the system will require separate training and a new vendor relationship.

**3) Competition:** While we believe T2 will be the only product on the market able to detect sepsis from whole blood through at least 2015 in the US, the longer term outlook is less clear. The landscape of potential competitors includes companies that are large and well funded, including Abbott, Roche, BioMerieux, and Cepheid. That said, our diligence suggests there are no platforms that have demonstrated performance on whole blood that is comparable to the T2 candida dataset. Relative to any competitor uncovered in our diligence, T2 appears to be favored based on total time of analysis and sensitivity/specificity.

## *Near Term Catalyst*

**FDA approval of T2candida by end of 2014:** Approval of T2candida before year end to ensure an early 2015 commercial launch will be the first critical milestone for T2 management while public. A fluid approval process will not only bolster the validity of the test and garner support for its adoption, but also provide confidence in management's ability to achieve subsequent expected milestones. Furthermore, for investors seeking clarity on commercial uptake, it would be optimal to have as much lead time as possible to evaluate the performance of T2candida prior to the launch of T2Bacteria.

## Valuation

We expect the market to utilize an enterprise value / revenue multiple approach as the primary methodology to value T2, given T2 is an early stage growth company not forecasted to turn profitable until 2017. When evaluating the proper EV/revenue multiple for T2 vs. the set of comparable companies, we expect the market to consider a number of factors, including:

- Revenue growth outlook
- Competitive positioning
- Profitability at steady state (and timing to achieve this)
- Current and future addressable market
- Needs for additional financing

We do not see a perfect comparable for T2 amongst publicly traded diagnostics companies. Thus, we expect investors to compare T2 to a broader set of companies, focusing on those of a similar market capitalization, which includes: FLDM, GHDX, LMNX, NSTG, PACB, VCYT, and CPHD,

**Exhibit 6:** Comparable companies summary

| | Price | Market Cap | EV / Sales | | | Debt / EBITDA | Stock Price Performance | | Short Interest | 2016 Multiples relative to 3yr average | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | 08/27/14 | (LC mm) | 2014 | 2015 | 2016 | 2015 | YTD | 3 Mths | Ratio (days) | P/E | EV/EBITDA | EV/Sales | S&P Rel.P/E |
| **Life Science Tools** | | | | | | | | | | | | | |
| CPHD | $39.61 | 2,780.9 | 6.1x | 5.2x | 4.4x | 6.8x | -15.1% | -12.3% | 12.07 | NA | NA | NA | NA |
| FLDM | $26.79 | 754.7 | 7.5x | 5.9x | 4.7x | NM | -30.0% | -9.6% | 5.63 | NA | NA | NA | NA |
| GHDX | $29.12 | 918.1 | 2.9x | 2.6x | 2.3x | NM | -0.5% | 6.9% | 15.58 | NA | NA | NA | NA |
| LMNX | $18.71 | 800.1 | 3.1x | 2.8x | 2.5x | 0.0x | -3.6% | 1.7% | 14.83 | NA | NA | NA | NA |
| NSTG | $11.41 | 206.7 | 3.0x | 2.0x | 1.4x | NM | -33.8% | -24.5% | 9.74 | NA | NA | 0.4x | NA |
| PACB | $5.38 | 380.0 | 6.2x | 5.2x | 4.0x | NM | 2.9% | 12.6% | 10.73 | NA | NA | 1.7x | NA |
| VCYT | $12.87 | 276.5 | 5.4x | 2.9x | 1.9x | NM | -11.2% | -15.0% | 4.23 | NA | NA | 0.4x | NA |
| Mean | | | 4.9x | 3.8x | 3.0x | 3.4x | -13.1% | -5.8% | 10.40 | NM | NM | 0.8x | NM |
| Median | | | 5.4x | 2.9x | 2.5x | 3.4x | -11.2% | -9.6% | 10.73 | NM | NM | 0.4x | NM |

Source: Thomson Reuters, Morgan Stanley Research estimates.

Given expectations that the T2Bacteria panel will not launch until 2H2016, we believe 2017 revenue estimates are a more appropriate reflection of the company's revenue generation capacity while balancing the preference to utilize forecasts closer to the present. We utilize a 2.5x - 5.0x range in the EV/sales multiple to reflect the broad trading range of the comparables for 2015 EV/ sales. The multiple range reflects diversity within the set and higher trading multiples for companies like FLDM and CPHD with: (1) demonstrated commercial certainty and success for its diagnostic solution(s); (2) higher revenue growth expectations; (3) and perceived superior innovation of its diagnostic solution(s). Conversely, companies with slower growth potential or more service-driven models are trading at a discount, such as GHDX.

We value T2 off of base case 2017 revenues of $115 MM using a 3.9x EV/Sales multiple, in-line with the midpoint of the comparable companies given the differentiating technology utilized by T2 while considering the commercial uncertainty around its diagnostic solutions. For the base case revenues we forecast penetration into 134 sites within the top 200 hospitals by the end of 2016 reflecting adoption of T2candida panel. We forecast expansion to 253 sites (out of top 450 hospitals) by end of 2018 driven by launch of T2Bacteria test and assume that the initial 134 sites will utilize both T2candida and T2Bacteria panels. Tests are forecasted at ~$170 per test assuming 2% annual price increases beginning in 2015. Hemostasis testing only generates ~$6MM in revenue in 2017. Assuming a fully loaded share base and 10% discount rate, we arrive at a 12-month target price of $18.00 (19% discount to current stock price, but 64% upside to IPO price).

We value our bull case off of 2020 revenues thereby capturing significant upside from the launches of

T2Bacteria panel and hemostasis panels in 2017. Site expansion reaches 367 sites for sepsis testing, considering bacterial sepsis is a significantly larger opportunity. To attract smaller-scale hospitals, we assume the company will need to decrease prices which is reflected in a gradual test price decline of 3% annually to ~$135 by 2020. Hemostasis tests contribute nearly $27MM in revenues or about 9% of total revenues. In this case, we assume a 5.0x EV/sales multiple to reflect higher growth potential and assume a fully loaded share base and 10% discount rate to arrive at a bull price of $45.00.

We value our bear case on 2017 revenues assuming that commercial uptake of the T2candida panels is slower than expected and the launches of the T2Bacteria and hemostasis panels are delayed beyond 2017. We forecast only 90% of penetration for T2candida panel from base case so 121 sites +, although pricing stays consistent with the base case. We utilize a 2.5x EV/sales multiple in this lower growth and greater commercial uncertainty scenario and assume a fully loaded share base and 10% discount rate to arrive at a bear price of $9.00.

**Exhibit 7:** Key valuation overview

| | Bull | Base | Bear |
|---|---|---|---|
| *Revenue year* | *2020* | *2017* | *2017* |
| Revenue | 305,475 | 115,352 | 85,731 |
| Revenue multiple | 5.0x | 3.9x | 2.5x |
| Forward value | 1,527,376 | 449,874 | 214,327 |
| Discount rate | 10% | 10% | 10% |
| Years | 5.0 | 2.0 | 2.0 |
| AV | 901,900 | 364,398 | 173,605 |
| | | | |
| 2015 net debt | (2,073) | (2,073) | (2,073) |
| Equity | 903,974 | 366,472 | 175,679 |
| | | | |
| Divide by: # of shares | | 20.04 | |
| Implied price | $ 45.11 | $ 18.29 | $ 8.77 |

Source: Morgan Stanley Research estimates.

## Company & Technology Overview

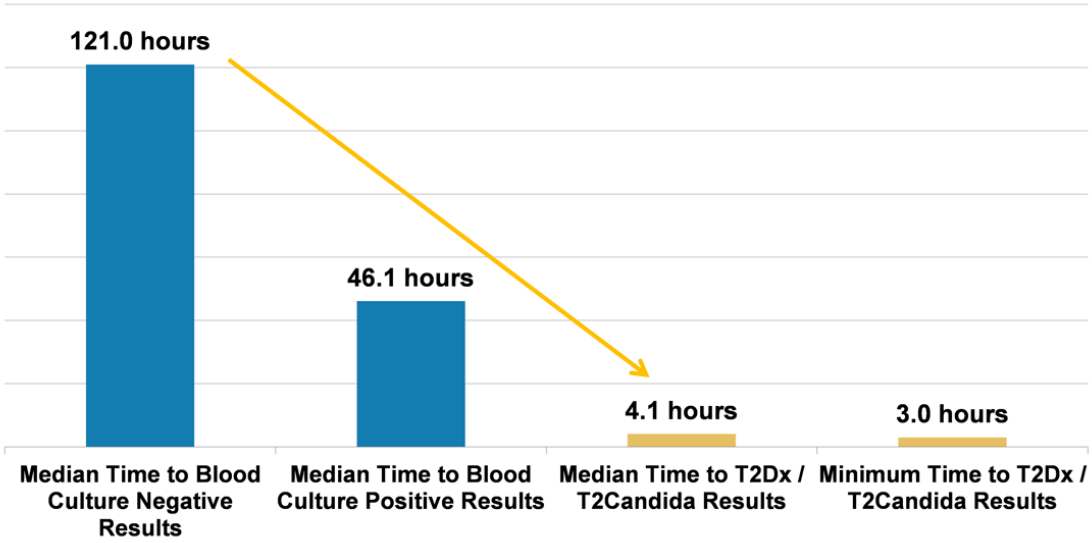
### *Company Description*

T2 Biosystems is a diagnostics company that seeks to improve patient outcomes and lower healthcare costs in the blood infection and hemostasis markets employing miniaturized PCR (a method for amplifying DNA across several orders of magnitude) and magnetic resonance (MR) technology for the analysis of whole blood samples. The company is currently awaiting FDA approval on its first assay, candida, to address the large, unmet clinical need for more rapid sepsis diagnosis, utilizing its T2Dx system, which offers a highly sensitive and specific diagnosis of sepsis in as little as three hours, curbing unnecessary drug treatment for uninfected patients and accelerating appropriate therapies for patients who have sepsis. The company also plans to add its T2Bacteria panel to penetrate the bacterial sepsis market by 2016 and later launch its T2Stat and T2HemoStat platforms for more rapid & accurate diagnosis of hemostasis.

### *The T2 Proposition*

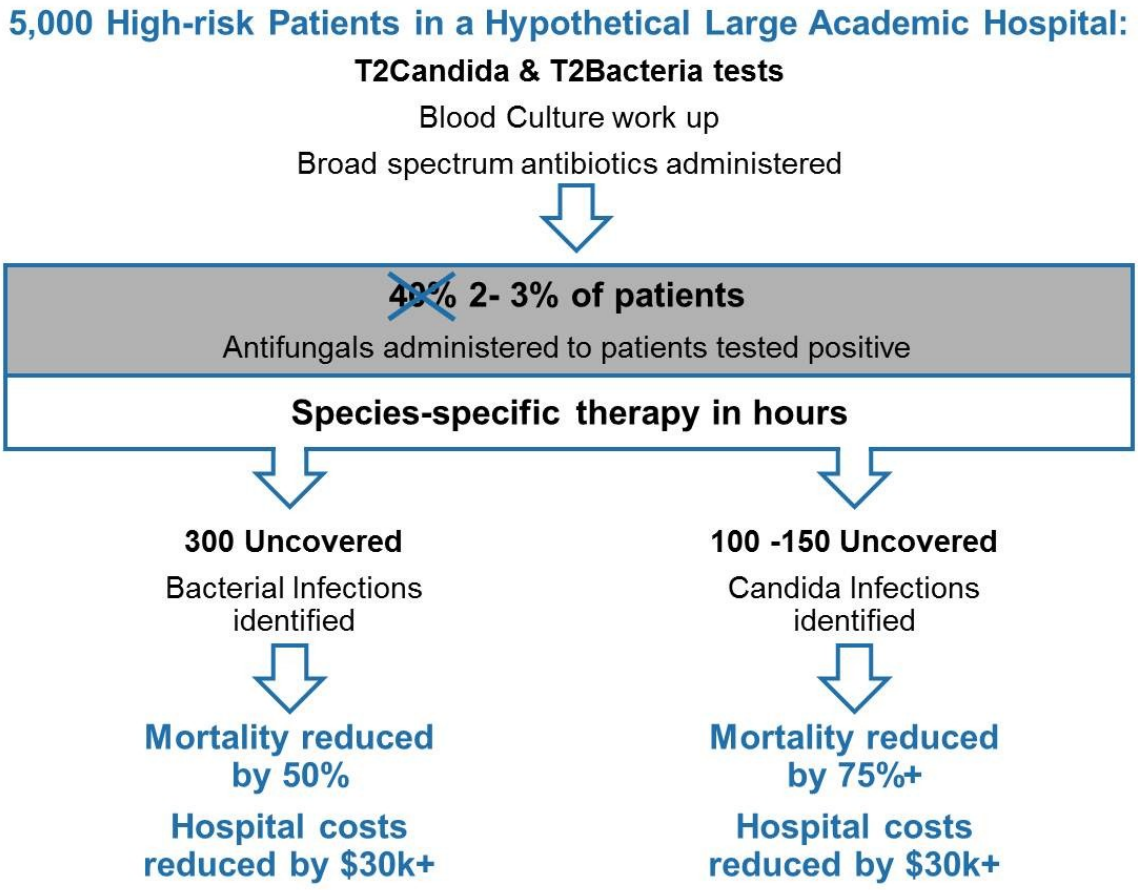
T2Dx is an easy-to-use, fully automated, bench-top instrument that is capable of running a broad range of diagnostic panel types from patient sample input to result, eliminating the need for manual work flow steps such as pipetting that can introduce risks of cross-contamination. The core incremental value proposition of the T2 system is its speed, as it has been shown in clinical trials to identify species of candida from a whole blood sample in three hours. Early diagnosis of sepsis would drive more effective therapies and cost savings, but the standard of care for the identification of pathogens that cause sepsis is blood culture-based, which typically requires two to five days to generate results.

**Exhibit 8:** Time to result demonstrates potential to dramatically improve care




Source: Company data.

T2's first application, the T2candida panel, will have the ability to rapidly identify the five clinically relevant species of candida, a fungal pathogen known to cause sepsis. T2 completed its pivotal clinical trial for T2Dx and T2candida in 1H14, and filed for approval with the FDA in May 2014. The T2 candida clinical trial experience suggests that its use will drive the use of anti-fungals from 40% to ~2-3% of patients, saving $500 per patient and the toxicity associated with antifungal drugs for those who otherwise would have received antifungal therapy. On a nationwide basis, applying the T2candida assay could save $1.3 billion annually in drug spend on ~2.5 million patients per year. T2 estimates the total savings from the use of the candida assay at ~$30,000 per patient, driven by reduced length of stay in hospital and ICU.




Source: Company data.

*Technology Overview*

T2Dx employs miniaturized PCR (a method for amplifying DNA across several orders of magnitude) and magnetic resonance (MR) technology for the analysis of whole blood samples. T2's T2MR detection technology analyzes how water molecules react in the presence of magnetic fields and is highly sensitive to changes in a blood sample samples at a molecular level. T2MR analysis enables the detection of pathogens, biomarkers, and other abnormalities in unpurified patient sample types, and can detect cellular targets at limits of detection as low as one colony forming unit per milliliter (CFU/mL). We believe T2 is the only company employing MR technology for this application, and note that the company has a substantial IP portfolio and an exclusive license from Massachusetts General Hospital for the core technology.

Competing technologies tend to rely on blood culture and in some cases polymerase chain reaction, or PCR, where 90% or more of the target can be lost. T2 can eliminate these steps because the T2 relaxation signal detected by MR is not compromised or disrupted by the sample background (including blood, which disrupts fluorescent tests), even the highly complex sample background that is present after a target amplification process, such as thermocycling. This enables T2MR's low limit of detection, such as 1 CFU/mL, compared to the

100 to 1,000 CFU/mL typically required for PCR-based methods.

T2 has validated the T2candida assay in a 1,500 sample prospective study and a 300-sample contrived study, demonstrating over 80% sensitivity and over 90% specificity across a range of species of fungal infections and validating the system's analytical process takes only three hours from sample to answer. The company has a constructive ongoing dialogue with the FDA since filing for approval in May of 2014 and expects FDA approval in November of 2014 followed by commercial launch in 1H15.

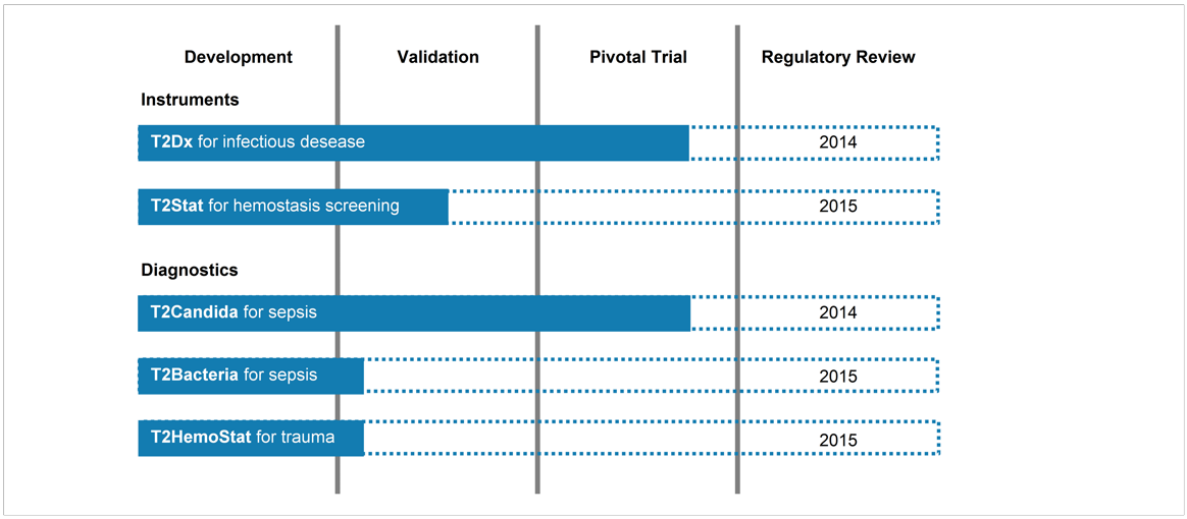
### *Pipeline: Test Menu Expansion*

While T2's first application is for the detection of candida, T2 expects to initiate clinical trials for T2Bacteria in the second half of 2015, rounding out the sepsis diagnosis toolkit. Bacterial infections are a more common driver of sepsis than are candida infections by at least a factor of three, making the bacterial panel a larger driver of the commercial potential of the T2Dx beginning at the time of launch in 2H216.

In 2017, T2 plans to launch a new platform through a distribution partner, the smaller and simpler T2Stat platform that will offer a range of hemostasis measurements in as little as 20 minutes, including platelet function, clotting time, and clot degradation, also known as fibrinolysis. T2 expects to initiate a pivotal clinical trial for T2Stat and T2HemoStat in the first half of 2016. Impaired hemostasis is a smaller opportunity than sepsis, a life-threatening condition in which a patient is unable to promote the formation of blood clots to stabilize excessive bleeding. Within the broader population of patients with symptoms of impaired hemostasis, there are over three million trauma patients in the United States annually whose impairment frequently goes undetected during the initial hospitalization. Trauma patients with symptoms of impaired hemostasis have mortality rates of 45%, which can be reduced to 19% with more rapid delivery of therapy. Today, there is no hemostasis diagnostic method that can rapidly provide comprehensive results.

Our diligence on the hemostasis market found broad dissatisfaction with the currently available diagnostic options for hemostasis assessment and management. Physicians often struggle to assess what a patient needs in terms of blood management upon presentation, be it clotting factors, whole blood, or plasma. Assessment with thromboelastography (TEG) or LTA can be helpful, but users view it as time consuming, unwieldy, and often demanding of multiple measurements over time. Early testers of the T2HemoStat platform found it to be easier to use and more comprehensive, potentially driving faster detection and treatment, saving costs associated with complications and unnecessary blood administration.

**Exhibit 9:** T2 Bio product pipeline




Source: Company data.

## Investment Debates Summary

### *Debate #1: Addressable Market Size*

**Market Debate:** What is the potential total addressable market for T2?

**Our View:** Sepsis is the most costly hospital-treated condition in the US, driving $20 billion of US hospital costs per year and a 30% mortality rate among the 1.35MM patients diagnosed out of 6.0-8.0MM patients per year who are at high risk. Application of T2 technology could drive 400-500 rapid diagnoses of sepsis in a single large academic hospital per year, driving over $50K in drug cost reductions. Given that T2Dx system offers a highly sensitive and specific diagnosis of sepsis in as little as three hours, faster by 24 hours or more than the standard of care to facilitate better and less expensive treatments, we see a revenue opportunity based upon significant market share capture. While the candida sepsis market is only 25% of the total sepsis market (based on patient volume), we see significant TAM expansion upon T2's launch of T2Bacteria in the second half of 2016. Furthermore, our diligence on the hemostasis market found broad dissatisfaction with the currently available diagnostic options for hemostasis assessment and management, although this is a longer-term growth catalyst.

### *Debate #2: FDA Approval*

**Market Debate:** Can T2 successfully navigate the FDA approval process for candida, its instruments and future assays?

**Our View:** We expect T2candida market entry in Q12015, which assumes FDA approval in November 2014. Given the clinical data available on the system and considering that the system is a diagnostic tool rather than a drug or implantable device, we feel comfortable that any challenges in the FDA process would more likely be related to timeline rather than approval. We believe the FDA is positively predisposed on the T2 system given the ongoing dialogue with the company and the FDA's recognition of the scale of the unmet need for sepsis diagnosis. Timelines for the bacteria panel launch (2H16) and hemostasis system launch (2017) are more difficult to evaluate given the lack of pivotal data, but preliminary data are promising and we have seen no evidence to suggest that the technology would fare less well in these applications than in the evaluation of candida. Importantly, candida is a 5 species, multi-plexed assay that provides comfort in the ability to scale into bacteria. We believe in both cases, the FDA process is likely to run more smoothly than for candida as the agency builds its familiarity with the technology and the team.

### *Debate #3: Sustainability of Market Position*

**Market Debate:** The competitive threat cannot be overlooked, given the economic upside potential in addressing both patient care and cost issues in this opportunity

**Our View:** The landscape of potential competitors includes companies that are large and well funded, including Abbott, Roche, BioMerieux, and Genmark. Our diligence suggests there are no platforms that have demonstrated performance on whole blood that is comparable to the T2 candida dataset. Relative to any competitor uncovered in our diligence, T2 appears to be favorable on total time of analysis and sensitivity/specificity. While we believe T2 will be the only product on the market able to detect sepsis from whole blood through at least 2015 in the US, the longer term outlook is less clear. That said, we believe the integration of MR provides T2 with technical advantages the traditional PCR players do not have.

# The Total Addressable Market Opportunity

## *Sepsis in the US*

In 2013, the U.S. Department of Health and Human Services reported that sepsis is the most expensive hospital-treated condition in the United States, with an economic burden to hospitals exceeding $20 billion annually, almost double that of heart attacks. Sepsis affects 1.5-2.0 million patients per year and kills 100,000 out of the 6.0-8.0 million who are tested and deemed at high risk, and 40% of these patients are being treated in less than 500 major US hospitals. Clinical literature estimates the cost per patient per case of sepsis treatment at $130K, and the benefit of early and appropriate therapy bringing total costs to $30K per patient. Each year, over 18 million cases of sepsis are diagnosed worldwide, with estimated mortalities exceeding five million patients, making it a leading cause of death worldwide.

**Exhibit 10:** T2MR targets the greatest unmet need in medical diagnosis: sepsis

| Rank | CCS category and name | Hospital costs, U.S. $BB | National costs, % | Mortality rate, % |
|---|---|---|---|---|
| 1 | **Sepsis** | **20.3** | **5.2** | **30%** |
| 2 | Osteoarthritis | 14.8 | 3.8 | 0.002% |
| 3 | Complication of device, implant or graft | 12.9 | 3.3 | 5.70% |
| 4 | Liveborn | 12.4 | 3.2 | 0.62% |
| 5 | Acute myocardial infarction | 11.5 | 3 | 15.80% |

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample (NIS), 2011 Abbreviation: CCS, Clinical Classifications Software

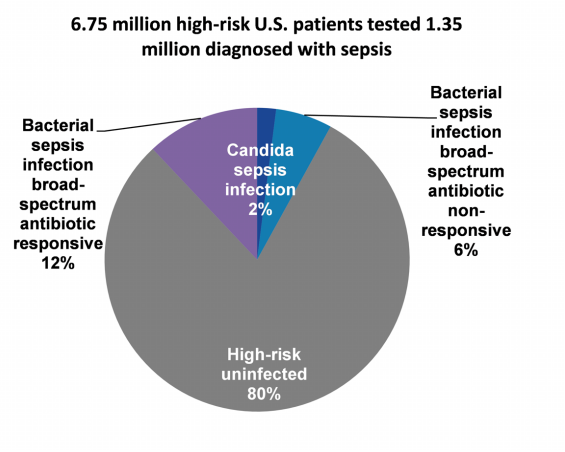
Most commonly afflicting immunocompromised, critical care and elderly patients, sepsis is a severe inflammatory response to a bacterial or fungal infection, with a mortality rate of approximately 30%. The high cost of treating sepsis is primarily driven by the extended hospitalization of patients. The array of pharmacologic therapies for the treatment of the infections that cause sepsis is substantial, but clinicians need to more rapidly identify the specific sepsis-causing pathogens in order to make more informed, targeted treatment decisions. Among patients with sepsis, less than half are treated optimally.

Hospitals among the 500 largest in the US treat an average of 5,000 patients per year deemed to be at risk for candidemia, a fungal infection and the cause of 25% of cases of sepsis. On average, 40% of these high risk patients will be put on antifungal drugs for up to 14 days, 95% of these patients are unnecessarily treated with antifungals at an avoidable cost of over $500. Total unnecessary antifungal spend reaches ~$1.4bn annually in the US. In addition to reduced drug costs, early diagnosis would drive cost savings via reduced hospital resistance, reduced procedures, fewer diagnostics, fewer readmissions and more effective treatment regimens.

T2's first application, the T2candida panel, will have the ability to rapidly identify the five clinically relevant species of candida, a fungal pathogen known to cause sepsis. T2 completed its pivotal clinical trial for the T2Dx instrument and T2Candida assay in 1H2014, and filed for approval with the FDA in May 2014. The T2candida clinical trial experience suggests that its use will drive the use of anti-fungals from 40% to ~2%-3% of patients, saving $500 per patient and the toxicity associated with antifungal drugs for those who otherwise would have received antifungal therapy. On a nationwide basis, applying the T2 candida assay could save $1.3 billion annually in drug spend on ~2.5 million patients per year. T2 estimates the total savings from the use of the candida assay at ~$30,000 per year, driven by reduced length of stay in hospital and ICU.

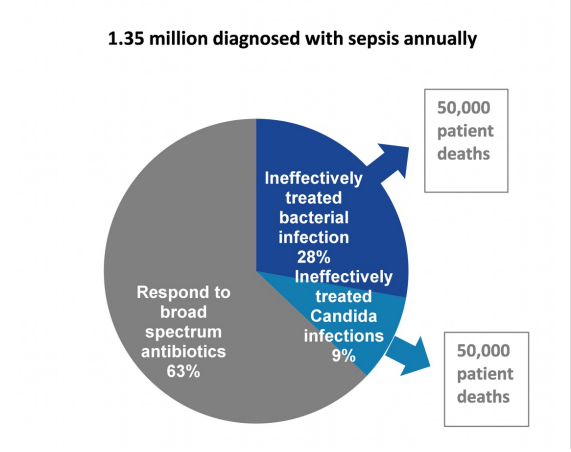
While T2's first application is for the detection of candida, T2 expects to initiate clinical trials for T2Bacteria in the

**Exhibit 12:** The landscape for high-risk patients that could benefit from testing




Source: Company data, Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample (NIS), 2011

**Exhibit 11:** The landscape of patients infected with sepsis and patient care outcomes




Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample (NIS), 2011.

sepsis than are candida infections by at least a factor of three, making the bacterial panel a larger driver of the commercial potential of the T2Dx system upon launch in 2H16. Testing of all 6-7mn high risk US patients for sepsis using the T2Bacteria panel and then the T2candida panel when appropriate yields an annual total addressable market opportunity of ~$2 billion only considering revenues from the panels at our estimated price of $170, on average per test, and exclusive of instrument and maintenance revenues.

## *Beyond Sepsis: Test Menu Pipeline*

In 2017, T2 plans to launch a new platform through a distribution partner, the smaller and simpler T2Stat platform that will offer a range of hemostasis measurements in as little as 20 minutes, including platelet function, clotting time, and clot degradation, also known as fibrinolysis. T2 expects to initiate a pivotal clinical trial for T2Stat and T2HemoStat in the first half of 2016. Impaired hemostasis is a smaller opportunity than sepsis, a life-threatening condition in which a patient is unable to promote the formation of blood clots to stabilize excessive bleeding. Within the broader population of patients with symptoms of impaired hemostasis, there are over three million trauma patients in the United States annually whose impairment frequently goes undetected during the initial hospitalization. Trauma patients with symptoms of impaired hemostasis have mortality rates of 45%, which can be reduced to 19% with more rapid delivery of therapy. Today, there is no hemostasis diagnostic method that can rapidly provide comprehensive results.

Our diligence on the hemostasis market found broad dissatisfaction with the currently available diagnostic options for hemostasis assessment and management. Physicians often struggle to assess what a patient needs in terms of blood management upon presentation, be it clotting factors, whole blood, or plasma. Assessment with thromboelastography or LTA can be helpful, but users view it as time consuming, unwieldy, and often demanding of multiple measurements over time. Early testers of the T2 hemo platform found it to be easier to use and more comprehensive, potentially driving faster detection and treatment, saving costs associated with complications and unnecessary blood administration.

## Competitive Positioning

We believe T2 is the only company employing MR technology for this application, and note that the company has a substantial IP portfolio and an exclusive license from Massachusetts General Hospital for the core technology. Competing technologies tend to rely on blood culture and in some cases polymerase chain reaction, or PCR, where 90% or more of the target can be lost. T2 can eliminate these steps because the T2 relaxation signal detected by MR is not compromised or disrupted by the sample background (including blood, which disrupts fluorescent tests), even the highly complex sample background that is present after a target amplification process, such as thermocycling. This enables T2MR's low limit of detection, such as 1 CFU/mL, compared to the 100 to 1,000 CFU/mL typically required for PCR-based methods.

T2's technology has been validated in conjunction with its T2candida assay in a 1,500 patient prospective study and a 300 sample contrived study, demonstrating over 80% sensitivity and over 90% specificity across a range of species of fungal infections and validating the system's analytical process takes only three hours from sample to answer. The company has a constructive ongoing dialogue with the FDA since filing for approval in May of 2014 and expects FDA approval in November of 2014 followed by commercial launch in 1H2015.

**Exhibit 13:** High levels of sensitivity demonstrated

| Sensitivity by Test | | |
|---|---|---|
| | | 95% Confidence Interval |
| A/T (C. albicans / C. tropicalis) | 96/104 (92.3%) | 85.4 - 96.6% |
| P (C. parapsilosis) | 49/52 (94.2%) | 84.1 - 98.8% |
| K/G (C. krusei / C. glabrata) | 89/101 (88.1%) | 80.2 - 93.7% |
| **Total** | **234/257 (91.1%)** | **86.9 - 94.2%** |

Source: Company data.

**Exhibit 14:** In addition to high specificity

| Specificity by Test | | |
|---|---|---|
| | | 95% Confidence Interval |
| A/T (C. albicans / C. tropicalis) | 1679/1697 (98.9%) | 98.3 - 99.4% |
| P (C. parapsilosis) | 1736/1749 (99.3%) | 98.7 - 99.6% |
| K/G (C. krusei / C. glabrata) | 1699/1700 (99.9%) | 99.7 - 100.0% |
| **Total** | **5114/5146 (99.4%)** | **99.1 - 99.6%** |

Source: Company data.

The company plans to offer customers both a reagent rental approach and an instrument acquisition approach for acquiring the T2 system, and we expect early adopters to favor the direct purchase approach given their higher testing volumes. Our pricing assumption at ~$170 per test is in part a reflection of this expectation, as reagent rental customers will likely pay a higher rate, closer to $200 per test. List pricing on the instrument is planned at $95,000, though direct sale average pricing is likely to land closer to $60,000. Our diligence on pricing found a willingness among customers to pay $100+ despite limited familiarity with the system and the clinical data in many cases, and T2's own survey efforts pointed to support for pricing over $150 per test. A third party, independent study of 25 Microbiology Lab Directors commissioned by T2 demonstrated a willingness to pay an average of $241 for T2candida, a higher figure than we anticipate but nonetheless supportive of our forecasts. While the T2 price structure is higher than alternatives, we believe the speed of the test will support premium pricing relative to competing offerings from Cepheid, BioFire, or Nanosphere (each is $50+ per test).

While we believe T2 will be the only product on the market able to detect sepsis from whole blood through at least 2015 in the US, the longer term outlook is less clear. The landscape of potential competitors includes companies that are large and well funded, including Abbott, Roche, BioMerieux, and Cepheid. That said, our diligence suggests there are no platforms that have demonstrated performance on whole blood that is comparable to the T2candida dataset. Relative to any competitor uncovered in our diligence, T2 appears to be favorable on total time of analysis and sensitivity/specificity.

The system closest to the market for sepsis diagnosis on whole blood appears to be Abbott's IRIDICA platform, formerly known as PLEX-ID. We found a high degree of enthusiasm for the IRIDICA platform in our diligence, though the early data from the RADICAL trial are limited and the system does not appear capable of delivering

results as quickly as the T2 platform (8 hours vs. 3 hours) or with as high sensitivity and specificity. The system's sample prep and PCR are fairly complex and require five hours of prep time, though this figure could come down over time. The system's strength is likely to be its high throughput, making it most applicable for high volume standardized applications including routine monitoring as opposed to rapid turnaround tests for as sepsis. Abbott plans to launch in Europe in 2H2014 but has not provided specific timing expectations for entry into the US. Pricing per test on the IRIDICA platform is also unknown, though we would expect it to less than $100 per test. Enthusiasm in the clinical setting for MALDI systems from Bruker and Biomerieux is notable, but we believe these systems may not be suitable for detection on whole blood and do not expect progress in this area for two+ years.

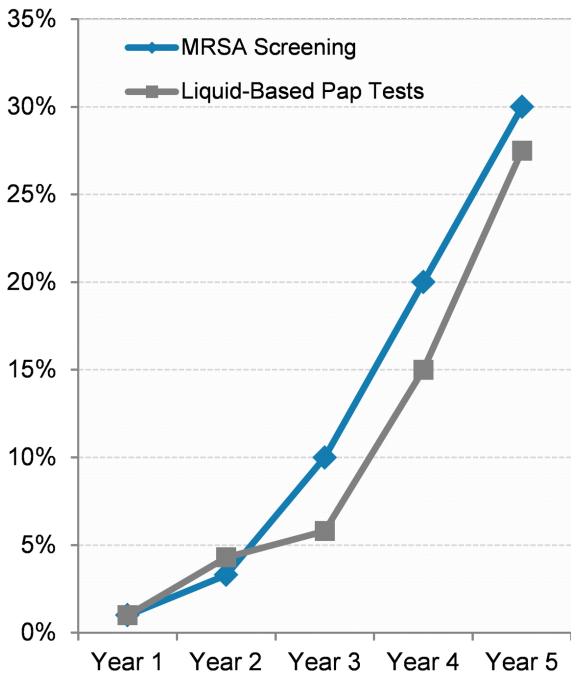
## Financial Overview & Key Risks

Our T2 forecasts are based on a product line build-up detailed in the Financials section. The forecasts reflect a series of key assumptions on timelines, pricing, hospital penetration, and instruments per hospital site. Key considerations include:

**1) Timeline:** We expect T2candida market entry in Q12015, which assumes FDA approval in November of 2014. Given the clinical data available on the system and considering that the system is a diagnostic tool rather than a drug or implantable device, we feel comfortable that any challenges in the FDA process would more likely be related to time than approval. We believe the FDA is positively predisposed on the T2 system given the ongoing dialogue with the company and the FDA's recognition of the scale of the unmet need for sepsis diagnosis. Timelines for the bacteria panel launch (2H2016) and hemostasis system launch (2017) are more difficult to evaluate given the lack of pivotal data, but preliminary data are promising and we have seen no evidence to suggest that the technology would fare less well in these applications than in the evaluation of candida. We believe in both cases, the FDA process is likely to run more smoothly than for candida as the agency builds its familiarity with the technology and the team.

**2) Penetration of the customer base:** T2 will focus selling efforts on the top 450 hospitals in the US, with the highest testing volumes (over 5,000 tests/year) and will additionally focus on the 200 highest testing sites within the top 450 (as high as 8,000 tests/year) within the first two years prior to the bacterial panel launch. While the unmet need in sepsis is high and the platform is promising, we expect a slower ramp ahead of the bacterial panel launch, given the relatively limited frequency of the presentation of candida infections. We forecast penetration into 134 sites by the end of 2016 and expect the average site to have 1.5 systems given that many early adopters will be in hospital networks with multiple labs and locations. We forecast a ramp to 253 sites by the end of 2018, with candida and bacteria driving uptake into a wider range of centers.

**Exhibit 15:** Predicate diagnostics and their historical US market penetration

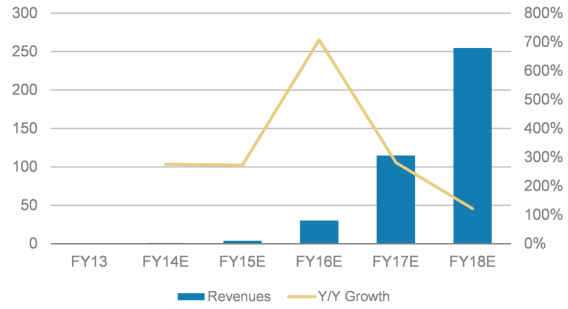



Source: Company data.

**3) Pricing:** T2 plans to offer customers both a reagent rental approach and an instrument acquisition approach for acquiring the T2 system, and we expect early adopters to favor the direct purchase approach given their higher testing volumes. Our pricing assumption at ~$170 per test is in part a reflection of this expectation, as reagent rental customers will likely pay a higher rate, closer to $200 per test. List pricing on the instrument is planned at $95,000, though direct sale average pricing is likely to land closer to $60,000. Our diligence on pricing found a willingness among customers to pay $100+ despite limited familiarity with the system and the clinical data in many cases, and T2's own survey efforts pointed to support for pricing over $150 per test. A third party, independent study of 25 Microbiology Lab Directors commissioned by T2 demonstrated a willingness to pay an average of $241 for T2candida, a higher figure than we anticipate but nonetheless supportive of our forecasts. While the T2 price structure is higher than alternatives, we believe the speed of the test will support premium pricing relative to competing offerings from Cepheid, BioFire, or Nanosphere (each is $50+ per test).

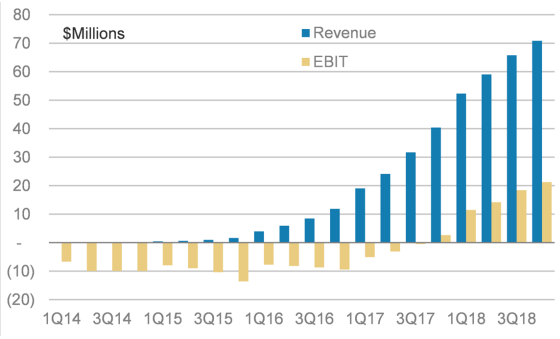
**4) The P&L and balance sheet:** Our T2 margin forecasts call for a ramp up in R&D over time as we anticipate further investments in new platform applications beyond hemostasis and bacteria. On the SG&A front, a broader service, selling, and promotional effort over time likely keeps the company unprofitable on the EBIT line until revenues approach $40MN per quarter, likely 4Q2017. Given that the company has access to a $30MN revolving credit line in its current phase, we do not anticipate future capital raises ahead of cash flow profitability in 2017. At the time the company turns profitable, we model an additional 2mn shares of dilution due to outstanding options. We do not expect the company to pay cash taxes for the foreseeable future, given the company has an existing $60MN net operating loss accrual, which we expect to grow to reach +$150MM in 2017.

**Exhibit 16:** Forecasted revenue progression




Source: Company data, Morgan Stanley Research.

**Exhibit 17:** Forecasted EBIT and revenue




Source: Company data, Morgan Stanley Research .

## Financials

**Exhibit 18:**

*Dollars in 000s, except per share data*

*Fiscal year ends Dec 31*

| | 2012A | 2013A | 2014E | | | | | 2015E | 2016E | 2017E | 2018E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2012A | 2013A | Mar-14 | Jun-14 | Sep-14 | Dec-14 | 2014E | 2015E | 2016E | 2017E | 2018E |
| **Revenue, net** | **$19** | **$266** | **$250** | **$250** | **$250** | **$250** | **$1,000** | **$3,768** | **$30,269** | **$115,352** | **$247,975** |
| Cost of Goods Sold | $0 | $0 | $0 | $175 | $175 | $175 | $525 | $3,014 | $12,865 | $36,913 | $69,433 |
| **Gross Profit** | **$19** | **$266** | **$250** | **$75** | **$75** | **$75** | **$475** | **$754** | **$17,405** | **$78,440** | **$178,542** |
| R&D | $11,727 | $14,936 | $5,065 | $4,500 | $4,525 | $4,500 | $18,590 | $18,839 | $24,216 | $34,606 | $34,717 |
| SG&A | $2,945 | $5,022 | $1,842 | $5,500 | $5,500 | $5,500 | $18,342 | $22,830 | $27,191 | $49,742 | $78,475 |
| Total Operating Expenses | $14,672 | $19,958 | $6,907 | $10,000 | $10,025 | $10,000 | $36,932 | $41,669 | $51,406 | $84,348 | $113,192 |
| EBITDA | ($14,082) | ($19,108) | ($6,513) | ($9,723) | ($9,747) | ($9,721) | ($35,704) | ($40,075) | ($32,943) | ($5,908) | $65,350 |
| **Operating Income** | **($14,653)** | **($19,692)** | **($6,657)** | **($9,925)** | **($9,950)** | **($9,925)** | **($36,457)** | **($40,915)** | **($34,001)** | **($5,908)** | **$65,350** |
| Interest Income (Exp) | ($154) | ($403) | ($86) | $2 | $67 | $137 | $119 | $195 | ($1,339) | ($3,399) | ($1,479) |
| Other Income (Expense) | $352 | ($515) | $73 | $73 | $73 | $73 | $292 | $292 | $292 | $292 | $292 |
| Total Non-op. Expense | $198 | ($918) | ($13) | $75 | $140 | $210 | $411 | $487 | ($1,047) | ($3,107) | ($1,187) |
| **Pre-Tax Income** | **($14,455)** | **($20,610)** | **($6,670)** | **($9,850)** | **($9,810)** | **($9,715)** | **($36,046)** | **($40,428)** | **($35,048)** | **($9,015)** | **$64,163** |
| *Tax Rate* | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Income Taxes | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| NOL Add | ($14,455) | ($20,610) | | | | | ($36,046) | ($40,428) | ($35,048) | ($9,015) | $0 |
| NOL Balance | ($14,455) | ($35,065) | | | | | ($71,111) | ($111,539) | ($146,587) | ($155,602) | ($155,602) |
| **Net Income** | **($14,455)** | **($20,610)** | ($6,670) | **($9,850)** | **($9,810)** | **($9,715)** | **($36,046)** | **($40,428)** | **($35,048)** | **($9,015)** | **$64,163** |
| Gross Margin | 100% | 100% | 100% | 30% | 30% | 30% | 48% | 20% | 57.5% | 68.0% | 72.0% |
| SG&A | 15500% | 1888% | 737% | 2200% | 2200% | 2200% | 1834% | 606% | 89.8% | 43.1% | 31.6% |
| R&D | 61721% | 5615% | 2026% | 1800% | 1810% | 1800% | 1859% | 500% | 80.0% | 30.0% | 14.0% |
| Operating Income | -77121% | -7403% | -2663% | -3970% | -3980% | -3970% | -3646% | -1086% | -112.3% | -5.1% | 26.4% |
| Pre-Tax Income | -76079% | -7748% | -2668% | -3940% | -3924% | -3886% | -3605% | -1073% | -115.8% | -7.8% | 25.9% |
| Net Income | -99300% | -10345% | -3430% | -4703% | -4686% | -4649% | -4367% | -1275% | -141.0% | -14.4% | 22.8% |
| **Growth Rates** | | | | | | | | | | | |
| Sales | | 1300% | NM | NM | NM | NM | 276% | 277% | 703% | 281% | 115% |
| Gross Profit | | 1300% | NM | NM | NM | NM | 79% | 59% | 2210% | 351% | 128% |
| SG&A | | 71% | 77% | NM | NM | NM | 265% | 24% | 19% | 83% | 58% |
| R&D | | 27% | 42% | NM | NM | NM | 24% | 1% | 29% | 43% | 0% |
| Operating Income | | 34% | 45% | NM | NM | NM | 85% | 12% | -17% | -83% | -1206% |
| EPS | | 42% | 46% | NM | NM | NM | -7% | -34% | -11% | -62% | -401% |

Source: Company data, Morgan Stanley Research

**Exhibit 19:** T2 product revenues

*Dollars in 000s, except per share data*

| | 2014E | 2015E | 2016E | 2017E | 2018E |
|---|---|---|---|---|---|
| | 2014E | 2015E | 2016E | 2017E | 2018E |
| **T2 Candida Revenue** | | | | | |
| **Test Revenue** | | | | | |
| Direct Customer Test Price | | $ 162 | $ 165 | $ 168 | $ 171 |
| Reagent Rental Test Price | | $ 162 | $ 165 | $ 168 | $ 171 |
| T2 Candida Tests | | 9,700 | 139,520 | 476,254 | 622,223 |
| **T2 Candida Revenue** | | **1,571,764** | **23,007,039** | **79,994,027** | **106,486,619** |
| **Instrument Revenue** | | | | | |
| **Total Candida Testing Sites EOP** | | **38** | **134** | **144** | **193** |
| New Sites | | 38 | 96 | - | - |
| Instruments per site | | 1.5 | 1.5 | 1.5 | 1.5 |
| Sites Adopting Candida & Bacteria | | - | - | 11 | 49 |
| Instruments per site | | - | - | - | - |
| T2 Instruments - new | | 58 | 144 | - | - |
| Instrument Price | | $ 60,000 | $ 58,500 | $ - | $ - |
| **T2Dx Instrument Revenue** | | **696,000** | **1,684,800** | - | - |
| **Support Revenue** | | | | | |
| HW maintenane | | 12% | 12% | 12% | 12% |
| Support Revenue | | - | 19,875 | 49,152 | - |
| Grand Total | | - | 42,120 | 192,692 | 276,110 |
| **Cumulative** | | - | **42,120** | **122,655** | **138,055** |
| **Total T2 Candida Revenue** | | **$2,267,764** | **$24,769,498** | **$80,240,346** | **$106,831,756** |
| **T2 Bacteria** | | | | | |
| **Test Revenue** | | | | | |
| Direct Customer Test Price | | | | $ 169 | $ 171 |
| Reagent Rental Test Price | | | | $ 169 | $ 171 |
| T2 Bacteria Tests | | | | 85,888 | 583,162 |
| **T2 Bacteria Revenue** | | | | **14,486,919** | **99,957,134** |
| **Instrument Revenue** | | | | | |
| **Total Sites EOP** | | - | - | **109** | **253** |
| Sites Converted from Candida | | | | 87 | 46 |
| Additional Instruments per site | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| New Sites | | | | 22 | 98 |
| Instruments per site | | 2.0 | 2.0 | 2.0 | 2.0 |
| T2 Instruments- new | | | | 131 | 197 |
| Instrument Price | | $ 60,000 | $ 58,500 | $ 57,038 | $ 55,612 |
| **T2Dx Instrument Revenue** | | | | **1,494,384** | **2,191,096** |
| **Support Revenue** | | | | | |
| HW maintenance | 12% | 12% | 12% | 12% | 12% |
| Support Revenue | | | | - | 43,644 |
| Grand Total | | | | - | 96,497 |
| **Cumulative** | | | | - | **72,873** |
| **Total T2 Bacteria Revenue** | **$0** | **$0** | **$0** | **$15,981,303** | **$102,273,956** |
| **Hemostasis revenue** | | | | | |
| **Test Revenue** | | | | | |
| Level I/II Test Price | | | $ 35 | $ 33 | $ 32 |
| Level III/IV Test Price | | | $ 35 | $ 33 | $ 32 |
| Level I/II Tests/year | - | - | - | 30,303 | 169,571 |
| Level III/IV Tests/year | - | - | - | 7,938 | 81,648 |
| Level I/II Revenue | - | - | - | 1,007,579 | 5,356,333 |
| Level III/IV Revenue | - | - | - | 263,939 | 2,579,056 |
| **Hemostasis Test Rev.** | - | - | - | **1,271,518** | **7,935,389** |
| **Instrument Revenue** | | | | | |
| Level I/II Sites | - | - | - | 24 | 14 |
| Level I/II Instruments per site | - | 4 | 4 | 4 | 4 |
| Level I/II Intruments -- new | - | - | - | 96 | 57 |
| Level III/IV Sites | - | - | - | 123 | 228 |
| Level III/IV Instruments per site | - | 2 | 2 | 2 | 2 |
| Level III/IV Intruments -- new | - | - | - | 245 | 455 |
| Level I/II Instrument Price | | | $ 15,000 | $ 14,250 | $ 13,538 |
| Level III/IV Instrument Price | | | $ 15,000 | $ 14,250 | $ 13,538 |
| Level I/II Instrument Rev. | - | - | - | 1,368,000 | 774,345 |
| Level III/IV Instrument Rev. | - | - | - | 3,491,250 | 6,159,563 |
| **Hemostasis Instrument Rev.** | - | - | - | **4,859,250** | **6,933,908** |
| **Hemostasis total revenue** | **$0** | **$0** | **$0** | **$6,130,768** | **$14,869,296** |
| **Other Revenue** | | | | | |
| Partner & Grant | 1,000,000 | 1,000,000 | 2,000,000 | 3,000,000 | 4,000,000 |
| International Rev | - | 500,000 | 3,500,000 | 10,000,000 | 20,000,000 |
| **Total other revenue** | **$1,000,000** | **$1,500,000** | **$5,500,000** | **$13,000,000** | **$24,000,000** |

Source: Company data, Morgan Stanley Research.

**Exhibit 20:** T2 balance sheet

*Dollars in 000s, except per share data*
*Fiscal year ends Dec 31*

| | 2012A | 2013A | 2014E | | | | | 2015E | 2016E | 2017E | 2018E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mar-14 | Jun-14 | Sep-14 | Dec-14 | | 2015E | | | |
| **ASSETS** | | | | | | | | | | | |
| Cash & Cash Equivalents | $9,709 | $30,198 | $23,698 | $14,670 | $60,271 | $48,737 | $48,737 | $3,599 | $1,977 | $6,735 | $11,812 |
| Restricted Cash | $80 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Prepaid Expenses & Other | $60 | $195 | $247 | $247 | $247 | $247 | $247 | $247 | $247 | $247 | $247 |
| **Total Current Assets** | **$9,849** | **$30,393** | **$23,945** | **$14,917** | **$60,518** | **$48,984** | **$48,984** | **$3,846** | **$2,224** | **$6,982** | **$12,059** |
| PP&E, Net | $1,195 | $1,118 | $1,237 | $1,060 | $883 | $703 | $703 | $240 | $2,209 | $11,556 | $30,840 |
| Restricted Cash | $340 | $340 | $340 | $340 | $340 | $340 | $340 | $340 | $340 | $340 | $340 |
| Other | $47 | $34 | $310 | $310 | $304 | $298 | $298 | $273 | $248 | $241 | $241 |
| **Total Assets** | **$11,431** | **$31,885** | **$25,832** | **$16,628** | **$62,044** | **$50,325** | **$50,325** | **$4,698** | **$5,020** | **$19,119** | **$43,480** |
| **LIABILITIES** | | | | | | | | | | | |
| Accounts Payable | $571 | $943 | $1,035 | $48 | $48 | $48 | $48 | $358 | $1,370 | $3,514 | $5,392 |
| Accrued Expenses | $733 | $1,319 | $2,372 | $6,000 | $6,015 | $6,000 | $6,000 | $8,352 | $9,744 | $14,888 | $17,859 |
| Current Portion of Borrowings | $820 | $1,759 | $1,764 | 1,778.7 | 1,793.3 | 1,808.0 | $1,808 | $1,079 | $39,771 | $39,144 | ($4,202) |
| Current Portion of Deferred Rent | $5 | $25 | $30 | $30 | $30 | $30 | $30 | $30 | $30 | $30 | $30 |
| **Total Current Liabilities** | **$2,129** | **$4,046** | **$5,201** | **$7,857** | **$7,886** | **$7,886** | **$7,886** | **$9,818** | **$50,914** | **$57,577** | **$19,080** |
| Notes Payable | $5,058 | $3,299 | $2,855 | $2,399 | $1,950 | $1,501 | $1,501 | $447 | $121 | $0 | $0 |
| Deferred Rent | $70 | $45 | $35 | $35 | $35 | $35 | $35 | $35 | $35 | $35 | $35 |
| Warrants to Purchase Redeemable Securi | $695 | $1,225 | $1,152 | $1,152 | $1,152 | $1,152 | $1,152 | $1,152 | $1,152 | $1,152 | $1,152 |
| **Total Liabilities** | **$7,952** | **$8,615** | **$9,243** | **$11,443** | **$11,023** | **$10,573** | **$10,573** | **$11,452** | **$52,222** | **$58,764** | **$20,267** |
| Redeemable Convertible Preferred Stock | $66,137 | $112,813 | $114,719 | $114,719 | $114,719 | $114,719 | $114,719 | $114,719 | $114,719 | $114,719 | $114,719 |
| **EQUITY** | | | | | | | | | | | |
| Common Stock | $2 | $2 | $2 | $2 | $2 | $2 | $2 | $2 | $2 | $2 | $2 |
| Additional Paid in Capital | $0 | $0 | $0 | $352 | $57,905 | $58,257 | $58,257 | $59,803 | $62,027 | $86,223 | $92,542 |
| Retained Earnings | ($62,660) | ($89,545) | ($98,132) | ($109,888) | ($121,605) | ($133,226) | ($133,226) | ($181,278) | ($223,950) | ($240,589) | ($184,050) |
| AOCI | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| **Total Stockholders' Equity** | **($62,658)** | **($89,543)** | **($98,130)** | **($109,534)** | **($63,697)** | **($74,967)** | **($74,967)** | **($121,473)** | **($161,921)** | **($154,364)** | **($91,505)** |
| **Total Liabilities & Equity** | **$11,431** | **$31,885** | **$25,832** | **$16,628** | **$62,044** | **$50,325** | **$50,325** | **$4,698** | **$5,020** | **$19,119** | **$43,480** |

Source: Company data, Morgan Stanley Research.

**Exhibit 21:** T2 cash flow statement

*Dollars in 000s, except per share data*
*Fiscal year ends Dec 31*

| | 2012A | 2013A | 2014E | | | | | 2015E | 2016E | 2017E | 2018E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mar-14 | Jun-14 | Sep-14 | Dec-14 | | | | | |
| **OPERATING** | | | | | | | | | | | |
| Net Income | (14,455) | (20,610) | (6,920) | (11,756) | (11,716) | (11,621) | (42,014) | (48,052) | (42,672) | (16,639) | 56,539 |
| Depreciation & Amortization | 571 | 584 | 144 | 202 | 203 | 204 | 753 | 840 | 1,058 | 2,188 | 5,513 |
| Stock Based Compensation | 403 | 578 | 239 | 352 | 353 | 352 | 1,296 | 1,546 | 2,224 | 4,196 | 6,319 |
| Noncash Interest Expense | 46 | 44 | 11 | - | 6 | 6 | 24 | 25 | 25 | 6 | - |
| Noncash Warrant Expense | 81 | - | - | - | - | - | - | - | - | - | - |
| Change in Fair Value of Warrants | (132) | 530 | (73) | - | - | - | (73) | - | - | - | - |
| Loss on Disposal of Asset | - | 6 | - | - | - | - | - | - | - | - | - |
| Stock-based License Fees | - | - | - | - | - | - | - | - | - | - | - |
| Deferred Rent | 15 | (5) | (6) | - | - | - | (6) | - | - | - | - |
| Changes in Operating Assets & Liabilities | 168 | 820 | 814 | 2,641 | 14 | (15) | 3,455 | 2,662 | 2,404 | 7,289 | 4,850 |
| Other | - | - | - | - | - | - | - | - | - | - | - |
| **Net Cash Provided by Operating Activities** | **(13,303)** | **(18,053)** | **(5,791)** | **(8,562)** | **(11,140)** | **(11,074)** | **(36,566)** | **(42,979)** | **(36,961)** | **(2,960)** | **73,221** |
| **INVESTING** | | | | | | | | | | | |
| Purchase of PP&E | (283) | (513) | (263) | (25) | (25) | (25) | (338) | (377) | (3,027) | (11,535) | (24,798) |
| Decrease (increase) in Restricted Cash | - | 80 | - | - | - | - | - | - | - | - | - |
| **Net Cash Used in Investing Activities** | **(283)** | **(433)** | **(263)** | **(25)** | **(25)** | **(25)** | **(338)** | **(377)** | **(3,027)** | **(11,535)** | **(24,798)** |
| **FINANCING** | | | | | | | | | | | |
| Proceeds from Issuance of Redeemable Convertible F | - | 39,768 | - | - | - | - | - | - | - | - | - |
| Proceeds from Issuance of Common Stock and Stock | 1 | 55 | - | - | 57,200 | - | 57,200 | - | - | 20,000 | - |
| Proceeds from Issuance of Restricted Stock | - | - | - | - | - | - | - | - | - | - | - |
| Dividends Paid | - | - | - | - | - | - | - | - | - | - | - |
| Proceeds from Issuance / (Drawdown) Revolver | 4,924 | - | - | - | - | - | - | - | 39,420 | (402) | (43,220) |
| Repayments of Note Payable | (374) | (848) | (446) | (441) | (435) | (435) | (1,757) | (1,783) | (1,054) | (345) | (127) |
| **Net Cash From Financing Activities** | **4,551** | **38,975** | **(446)** | **(441)** | **56,765** | **(435)** | **55,444** | **(1,783)** | **38,366** | **19,253** | **(43,346)** |
| **Net Change in Cash** | **($9,035)** | **$20,489** | **($6,500)** | **($9,028)** | **$45,601** | **($11,534)** | **$18,539** | **($45,138)** | **($1,622)** | **$4,758** | **$5,077** |
| Cash and Cash Equivalents (BOP) | 18,744 | 9,709 | 30,198 | 23,698 | 14,670 | 60,271 | 30,198 | 48,737 | 3,599 | 1,977 | 6,735 |
| Cash and Cash Equivalents (EOP) | $9,709 | $30,198 | $23,698 | $14,670 | $60,271 | $48,737 | $48,737 | $3,599 | $1,977 | $6,735 | $11,812 |
| **Financial Metrics** | | | | | | | | | | | |
| Free Cash Flow (FCF) | (13,586) | (18,566) | (6,054) | (8,587) | (11,165) | (11,099) | (36,904) | (43,355) | (39,988) | (14,495) | 48,423 |
| FCF per share | (6) | (8) | (3) | (4) | (2) | (2) | (9) | (6) | (6) | (2) | 6 |
| Free Cash Flow Yield | (0) | (1) | (0) | (0) | (0) | (0) | (1) | (0) | (0) | (0) | 0 |

Source: Company data, Morgan Stanley Research

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| | COVERAGE UNIVERSE | | INVESTMENT BANKING CLIENTS (IBC) | | |
|---|---|---|---|---|---|
| STOCK RATING CATEGORY | COUNT | % OF TOTAL | COUNT | % OF TOTAL IBC | % OF RATING CATEGORY |
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| **Underweight/Sell** | **566** | **18%** | **93** | **11%** | **16%** |
| **TOTAL** | **3,130** | | **861** | | |

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**INDUSTRY COVERAGE: Life Science Tools & Diagnostics**

| COMPANY (TICKER) | RATING (AS OF) | PRICE* (08/29/2014) |
|---|---|---|
| **David R. Lewis** | | |
| T2 Biosystems Inc (TTOO.O) | E (09/01/2014) | $23.21 |

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.