Foundation Medicine, Inc. (FMI)

Proprietary Survey in HemeOnc Explores Current and Future Landscape of Diagnostics; Highlights Potential for FMI's Heme

MARKET OUTPERFORM | Price: $29.30 | Target Price: $45.00

MARKET DATA

Price	$29.30
52-Week Range:	$19.51 - $45.00
Shares Out. (M):	28.1
Market Cap ($M):	$823.3
Average Daily Vol. (000):	150.0

Source: Thomson Reuters and JMP Securities LLC

FY DEC		2013A	2014E	2015E
Revenue ($M)	1Q	$5.2	$11.4A	$21.4
	2Q	$5.9	$12.7	$22.8
	3Q	$8.2	$13.5	$25.9
	4Q	$9.7	$17.0	$28.9
	FY	**$29.0**	**$54.6**	**$98.9**
EPS	1Q	($0.33)	($0.44)A	($0.46)
	2Q	($0.48)	($0.42)	($0.49)
	3Q	($3.51)	($0.42)	($0.50)
	4Q	($0.48)	($0.47)	($0.54)
	FY	**($4.64)**	**($1.75)**	**($1.12)**

Source: Company reports and JMP Securities LLC

STOCK PRICE PERFORMANCE

INVESTMENT HIGHLIGHTS

We reiterate our Market Outperform rating and $45 price target on shares of Foundation Medicine. We surveyed 50 oncologists who treat blood cancers, with the objective of understanding the current and potential future uses of molecular diagnostics (MDx) testing (including FoundationOne Heme) in diagnosis and guidance of therapy. We estimate that our respondents treated approximately 8% of U.S. hematology patients in 2013. Our survey results support our longer-term thesis that molecular diagnostics will move farther upstream along diagnostic pathways and eventually displace current immunohistochemistry, or FISH platforms, but that companies like Foundation Medicine need to continue to publish clinical data to prove the utility of their tests and reduce the perception that these tests are extremely complex.

We expect FoundationOne Heme to find rapid adoption in indications where there is a relatively high usage of MDx testing today and where physicians find themselves running out of treatment options more frequently (i.e., AML, MM, and MDS). Overall, we believe the survey provides a detailed level of insight into usage patterns for existing technologies across a wide variety of blood cancers, but more importantly, supports our longer-term thesis that FoundationOne Heme is broadly applicable and has the potential to inform therapeutic decision-making at many levels of the diagnostic process. Our $45 price target is predicated on an EV/S multiple of 15x FY15E sales as well as a 10-year DCF analysis, discounting our 2025 revenue estimates by 12%, assuming a 4% growth rate.

Physicians and indications in our survey. Fifty physicians responded to our survey and treat the following hematological cancers: ALL, CLL, DLBCL, MDS, MPN, MM, AML. In aggregate, these oncologists saw more than 12,500 unique patients in 2013.

Diagnostic methods in our survey. Blood test, peripheral blood smear, bone marrow biopsy, lymph node biopsy, spinal fluid test, lumbar puncture, immunocytochemistry, flow cytometry, cytogenetics, molecular testing, imaging (e.g., CT, MRI), ultrasound, and FoundationOne Heme.

Clinical need will continue to drive MDx penetration. MDx is still primarily used to guide treatment at later stages of a disease. Only 41% of respondents report using MDx on a routine basis. Yet, a large percentage of respondents fail to fully treat patients and run out of options. In these cases, physicians do not know how to proceed ~40% of the time and patients are essentially put on palliative care. Despite the opportunity, there is a perception that MDx tests are too complex to use. With regard to FoundationOne Heme, our results indicate the fastest uptake in indications that have a high level of untreated cases where physicians already use a great deal of MDx testing (i.e., MM, AML, and MDS), while we expect to see slower uptake in CLL, where physicians report the greatest amount of treatment success.

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PROPRIETARY SURVEY ON DIAGNOSTICS IN HEMATOLOGICAL ONCOLOGY

We recently surveyed 50 oncologists with the specific goal of understanding the utilization rate of molecular diagnostics (MDx) testing and, in particular, Foundation Medicine's comprehensive cancer panel test for the diagnosis and guiding therapy for several forms of blood cancer. Molecular diagnostic (MDx) tests are a key component of personalized cancer genomics. These tests identify mutations that drive cancer progression and predict responses to therapies that may improve progression-free survival for patients. Our survey was aimed at gaining a more granular understanding of the forms of testing currently used by oncologists across a wide variety of indications and testing technologies.

Our results indicate that MDx testing is largely underpenetrated in blood cancers, in contrast to its use in solid tumors. For respondents who use MDx in blood cancers, it is primarily used as a late-stage diagnosis tool and guide to determine the best treatment available. We also sought to understand if respondents would be interested in using a comprehensive cancer panel test, including tests for genomic alterations for several genes. Currently, FoundationOne Heme is the only comprehensive panel on the market targeted at human hematologic malignancies, sarcomas, and pediatric cancers. It is designed to provide physicians with clinically actionable information to guide treatment options for patients based on the genomic profile of their cancer.

FoundationOne Heme provides a fully informative genomic profile of the tumor as opposed to individual molecular tests (such as PCR or FISH) or targeted gene panels that test for a limited number of genes. FoundationOne Heme complements FoundationOne by adding another one hundred DNA genes and a couple hundred RNA genes. As the competitive landscape quickly evolves for genomic testing and pricing pressures increase contributing to growing adoption rates, we wanted to understand how oncologists would integrate such a comprehensive cancer panel test into their practice.

Survey structure. We surveyed 50 oncologists, with 5-20 years of practice experience, and who diagnose/treat most types of blood cancers. Respondents treat the following indications: ALL (Acute Lymphoblastic Leukemia), CLL (Chronic Lymphocytic Leukemia), DLBCL (Diffuse Large B-Cell Lymphoma), MDS (Myelodysplastic Syndrome), MPN (Myeloproliferative Neoplasm), MM (Multiple Myeloma), AML (Acute Myeloid Leukemia). In aggregate, these oncologists saw a total of more than 12,500 unique patients in 2013. According to the Leukemia and Lymphoma society, >150,000 patients have been diagnosed with either form of blood cancer in the U.S. and represent 9% of the ~1,670,000 new cancer cases last year. Our survey represents 8% of the total blood cancer population; therefore, we believe our results are representative of this population.

Our survey yielded the following conclusions:

1. The most frequent diagnosis methods for hematological malignancies are: 1) blood test, 2) bone marrow biopsy, 3) peripheral blood smear, 4) cytogenetics, 5) flow cytometry, 6) molecular testing (e.g., FISH, PCR).

2. MDx testing is currently used to guide treatment rather than as a diagnosis tool and is therefore considered at much later stages of therapeutic intervention. MDx testing is still largely underpenetrated, with only 41% of respondents (of the 47 users of MDx) actually used MDx testing in all of their cases in 2013.

3. Physicians reported being able to fully treat only 10.7% of cases in 2013, with the remainder often not having any options. In 40% of cases for which patients run out of options, the physician did not quite know how to proceed (supportive care being the primary option). Regarding whether respondents would be interested in using a comprehensive cancer assay to manage therapy - 31% said yes, 19% said no, while 50% of respondents were unsure. We believe there to be a positive correlation between respondents' willingness to try a comprehensive panel test when patients run out of available options.

4. With regard to Foundation Medicine's FoundationOne Heme, results indicate there is plenty of room for growth but education on clinical utility is needed. The majority of respondents (~50%) were not sure whether they would use such comprehensive cancer assay to manage therapy, indicating the need for: 1) educational programs demonstrating clinical utility; and 2) raising awareness that such a product is already on the market. It is likely those respondents may be reluctant to convert from a home grown panel test to a commercial version until clinical utility is actually proven.

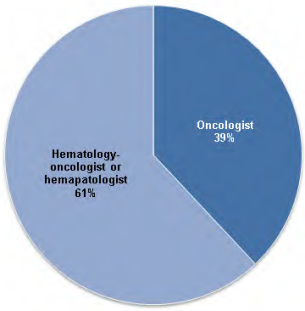
5. The key hurdle for Foundation Medicine is the perception of test complexity. Of those interested in ordering such a test, 69% thought of the comprehensive genetic panel as a diagnosis tool while an overwhelming 96% considered using it to identify the best targeted therapy options for their patients.

6. In our opinion, there is opportunity for a comprehensive fully informative genomic profiling test, like FoundationOne Heme, to replace more traditional diagnostics tests. In the long-run, we expect to see increasing usage at earlier stages of the diagnostic process.

RESPONDENTS AND RELEVANT INDICATIONS

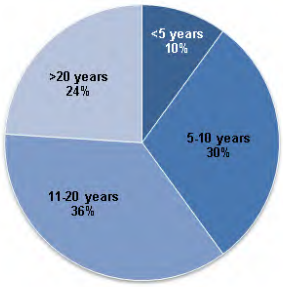
For this study, we surveyed 50 oncologists, 31 of which are blood cancer specialists (hematology-oncologists or hematopathologists) and the remaining 19 were oncologists. Only 10% of these doctors had less than five years of experience, with the majority having, on average, 11-20 years' experience. In aggregate, these oncologists saw 12,548 unique patients in 2013. Thirty-seven percent of respondents surveyed reported seeing between 250-500 patients last year, while 25% saw more than 750 patients. The description and distribution of relevant diseases are reported in Figures 3 and 6. Among our respondents, MM (cancer of plasma cells) is reported most frequently at 20%, followed by DLBCL (cancer of B cells) at 16%, trailed by ALL at 9%. We have provided incidence rates in the U.S. for blood cancers in 2013 for comparison (Figure 4).

FIGURE 1. Respondents' profession (N=50)



Source: JMP Securities LLC

FIGURE 2. Years in practice (N=50)



Source: JMP Securities LLC

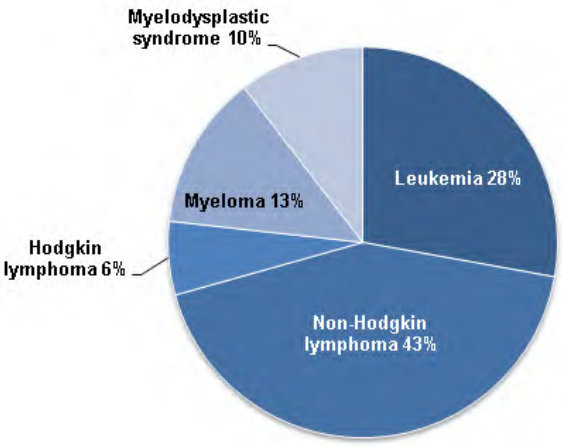
FIGURE 3. Relevant Indications for this Survey

Acronym	Name	Description
ALL	Acute Lymphoblastic Leukemia	Cancer of the white blood cells, characterized by the overproduction of cancerous, immature white blood cells—known as lymphoblasts.
CLL	Chronic Lymphocytic Leukemia	Most common type of leukemia in adults. CLL affects B cell lymphocytes. B cells originate in the bone marrow, develop in the lymph nodes, and normally fight infection by producing antibodies.
DLBCL	Diffuse Large B-Cell Lymphoma	Cancer of B cells, a type of white blood cell responsible for producing antibodies. DLBCL is the most common form of non-Hodgkin lymphoma.
MDS	Myelodysplastic Syndrome	Bone marrow does not make enough healthy blood cells and there are abnormal blast cells in the blood and/or bone marrow.
MPN	Myeloproliferative Neoplasm	Body tells too many blood stem cells to become red blood cells, white blood cells, or platelets.
MM	Multiple Myeloma	Cancer that starts in the plasma cells, most common type of plasma cell cancer.
AML	Acute Myeloid Leukemia	Bone marrow makes abnormal myeloblasts (type of white blood cell), red blood cells, or platelets.

Source: JMP Securities LLC

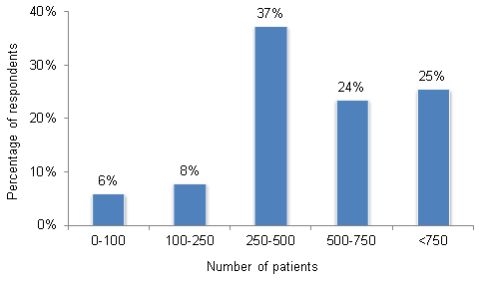
Blood cancers fall typically into three categories: leukemia usually affects white blood cells and cases are classified as either acute or chronic; lymphoma is a type of cancer that originates in the lymphatic system; and multiple myeloma is a type of cancer that affects certain white blood cells called plasma cells. According to the Leukemia and Lymphoma society, >150,000 patients have been diagnosed with either form of blood cancer in the U.S., representing 9% of ~1,670,000 new cancer cases. In 2013, non-Hodgkin lymphoma and leukemia were the most common forms of diagnosed blood cancers at 43% and 28% of incidence cases, respectively. Our survey represents 8% of these patients and therefore, we believe our results are representative of the overall blood cancer patient population.

FIGURE 4. Incidence Rate Distribution in the U.S. (2013)



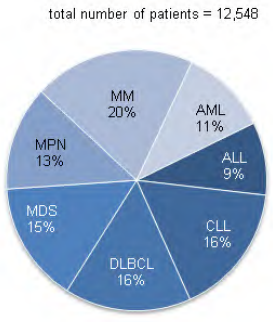
Source: JMP Securities LLC, Leukemia & Lymphoma Society

FIGURE 5. Number of Patients in 2013 seen by Respondents (N=50)



Source: JMP Securities LLC

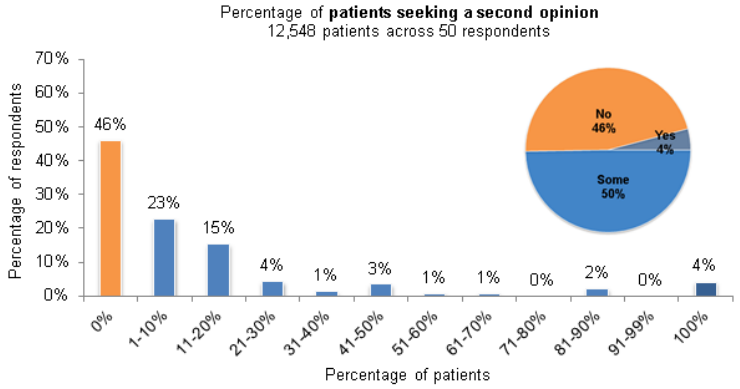
FIGURE 6. Disease Distribution across all Respondents (N=50)



Note that the total sums >100% as respondents can diagnose/treat for more than one indication).

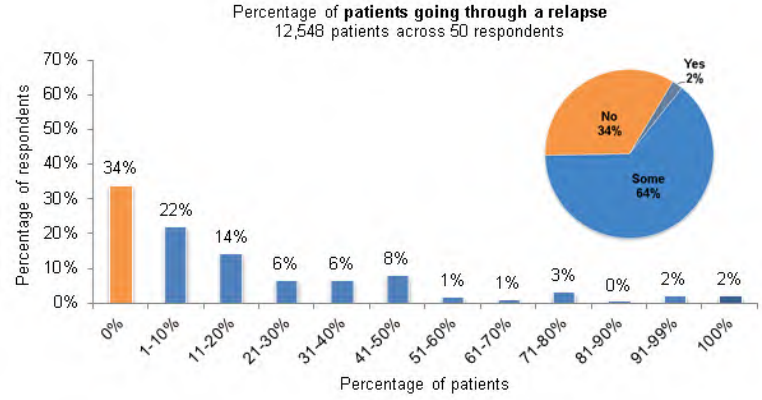
Source: JMP Securities LLC

FIGURE 7. Frequency of Patients Seeking a Second Opinion



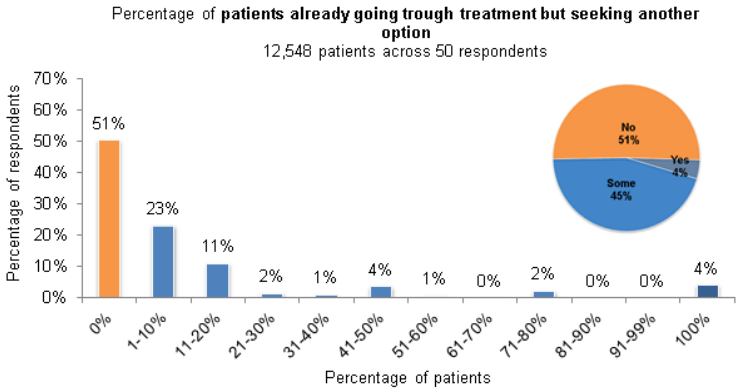
Source: JMP Securities LLC

FIGURE 8. Frequency of Patients Going Through a Relapse



Source: JMP Securities LLC

FIGURE 9. Frequency of Patients Already Undergoing Treatment but Seeking Other Options

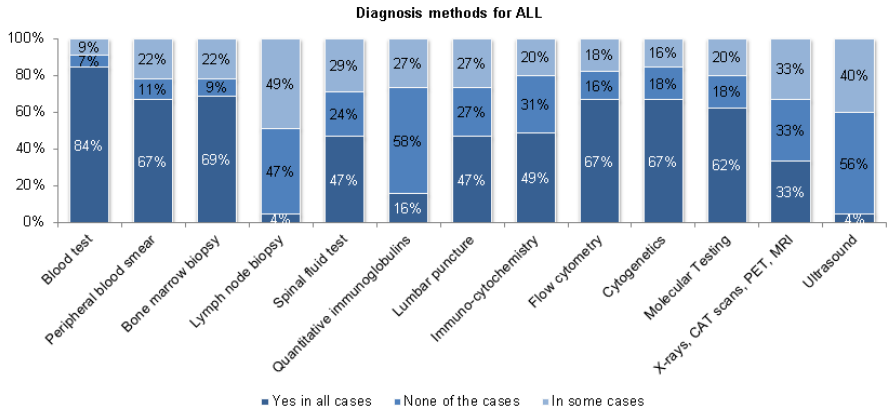


Source: JMP Securities LLC

DIAGNOSIS METHODS REPORTED

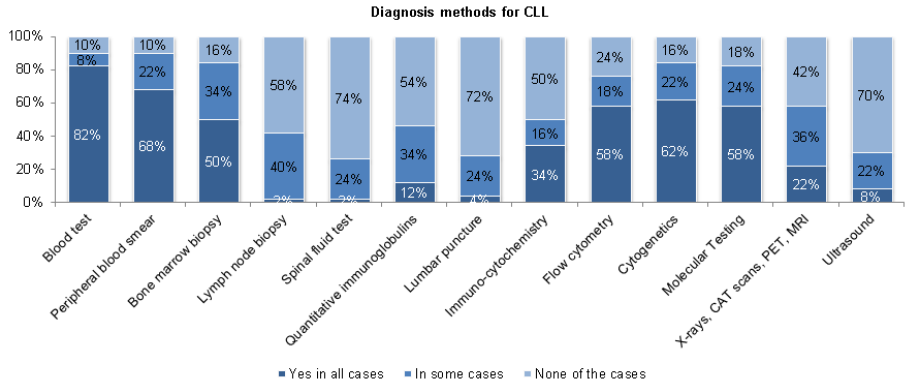
In this section, we show different diagnosis methods respondents reported utilizing. We display the results both by indication and by methodology. Typically, diagnostic procedures for cancer may include a combination of laboratory tests (including tests for tumor markers), imaging, tumor biopsy, endoscopic examination, or genetic testing. Our data indicate that the most frequent diagnosis methods are: 1) blood test, 2) bone marrow biopsy, 3) peripheral blood smear, 4) cytogenetics, 5) flow cytometry, 6) molecular testing (e.g., FISH, PCR). The least used diagnosis method among our respondents is ultrasound. Morphological testing (blood test and bone marrow biopsy) lead the diagnosis process, followed closely by staining methods (i.e., cytogenetics and flow).

FIGURE 10. Diagnosis Methods by Indication: ALL



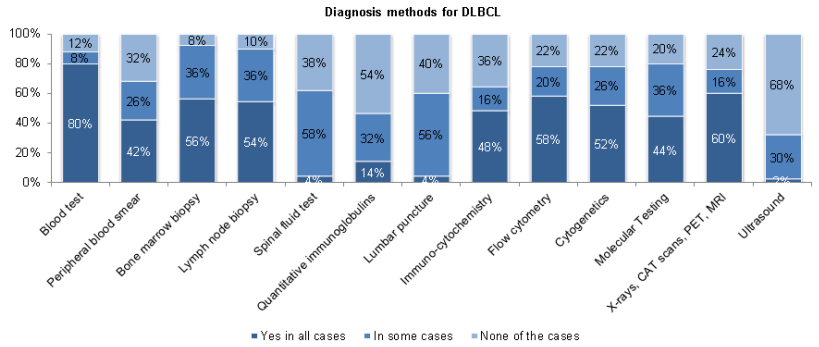
Source: JMP Securities LLC

FIGURE 11. Diagnosis Methods by Indication: CLL



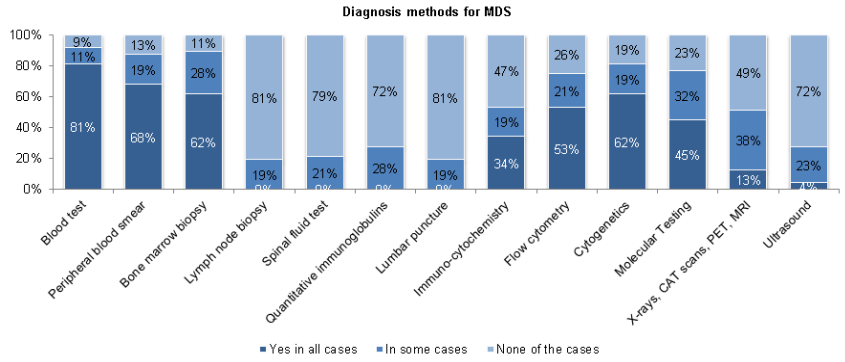
Source: JMP Securities LLC

FIGURE 12. Diagnosis Methods by Indication: DLBCL



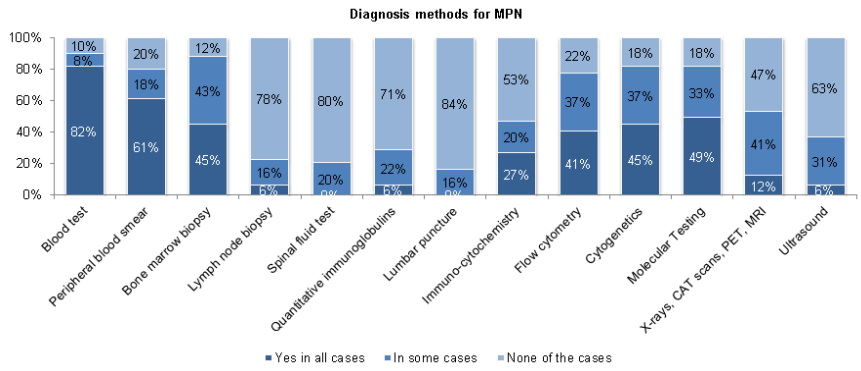
Source: JMP Securities LLC

FIGURE 13. Diagnosis Methods by Indication: MDS



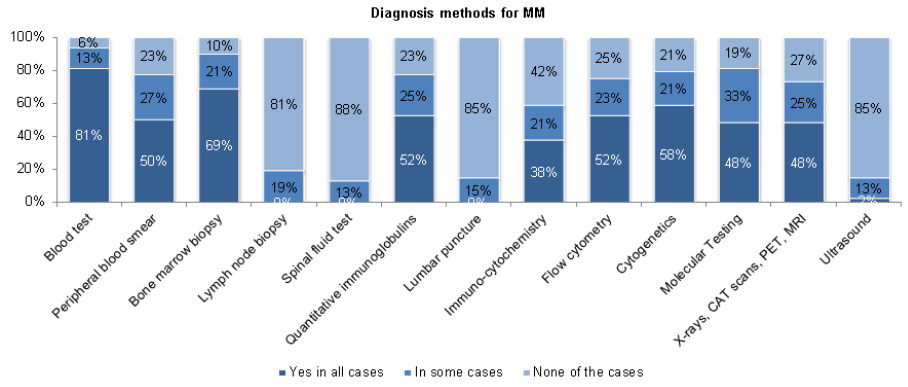
Source: JMP Securities LLC

FIGURE 14. Diagnosis Methods by Indication: MPN



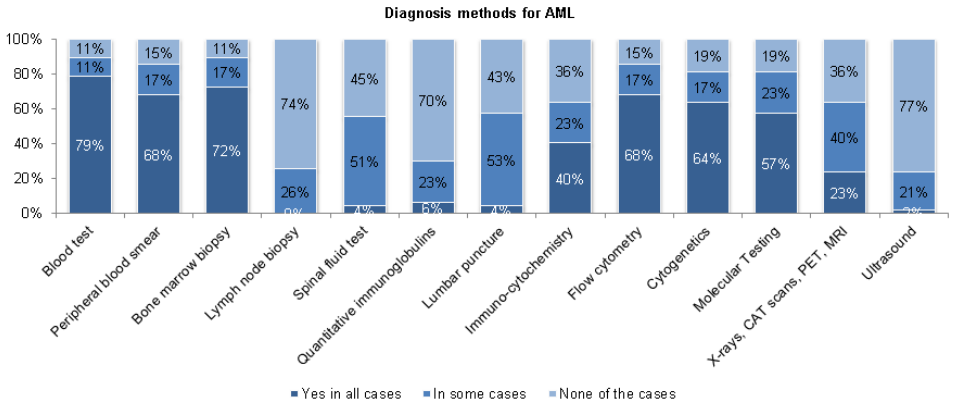
Source: JMP Securities LLC

FIGURE 15. Diagnosis Methods by Indication: MM



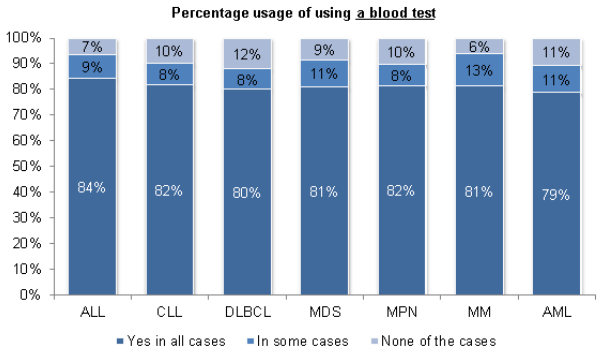
Source: JMP Securities LLC

FIGURE 16. Diagnosis Methods by Indication: AML



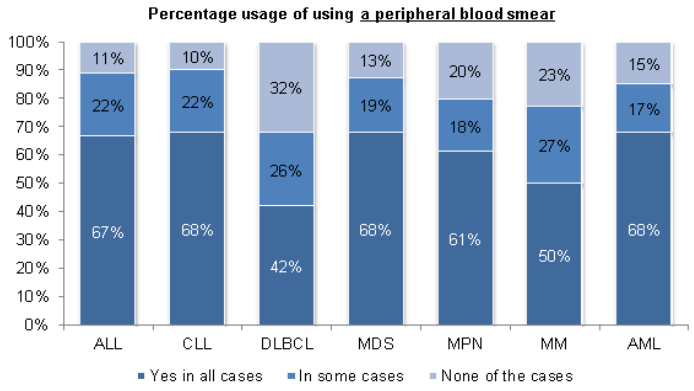
Source: JMP Securities LLC

FIGURE 17. Diagnosis Across Indication by Methodology: Blood Test



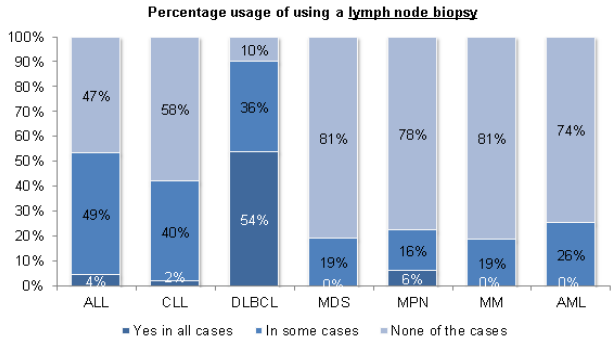
Source: JMP Securities LLC

FIGURE 18. Diagnosis Across Indication by Methodology: Peripheral Blood Smear



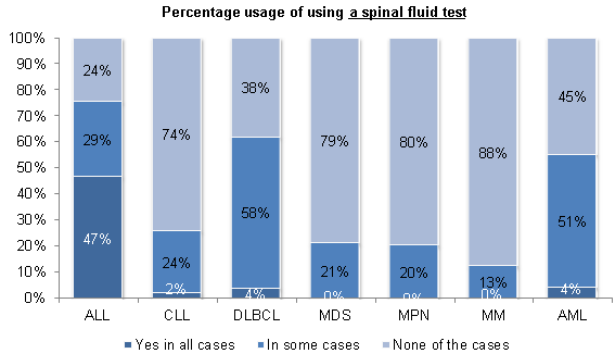
Source: JMP Securities LLC

FIGURE 19. Diagnosis Across Indication by Methodology: Lymph Node Biopsy



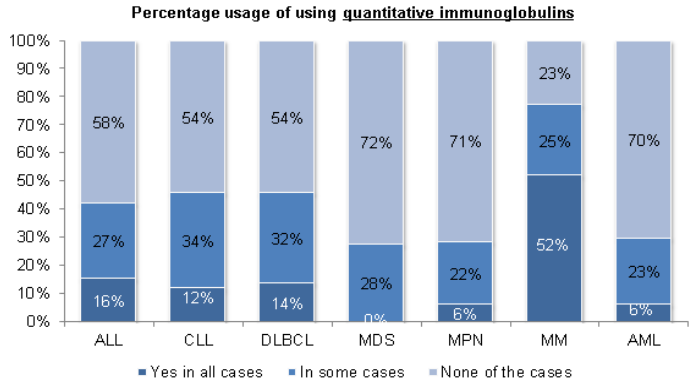
Source: JMP Securities LLC

FIGURE 20. Diagnosis Across Indication by Methodology: Spinal Fluid Test



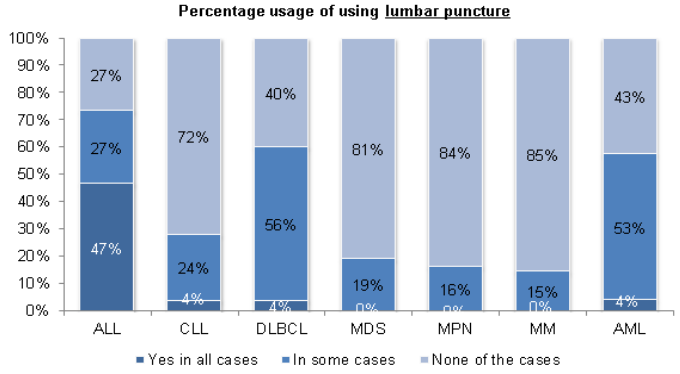
Source: JMP Securities LLC

FIGURE 21. Diagnosis Across Indication by Methodology: Quantitative Immunoglobulins



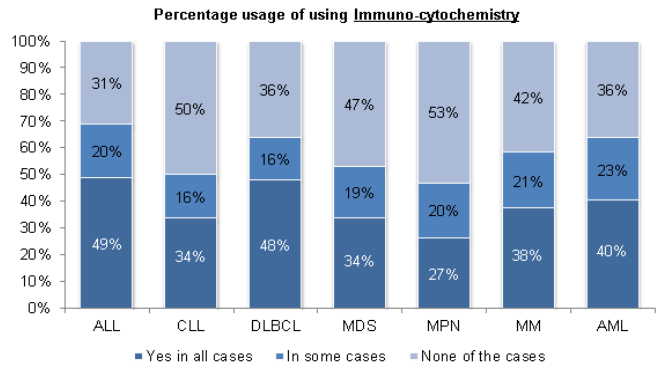
Source: JMP Securities LLC

FIGURE 22. Diagnosis Across Indication by Methodology: Lumbar Puncture



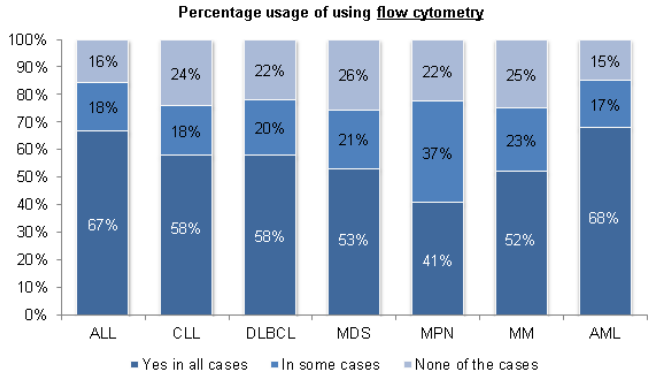
Source: JMP Securities LLC

FIGURE 23. Diagnosis Across Indication by Methodology: Immuno-cytochemistry



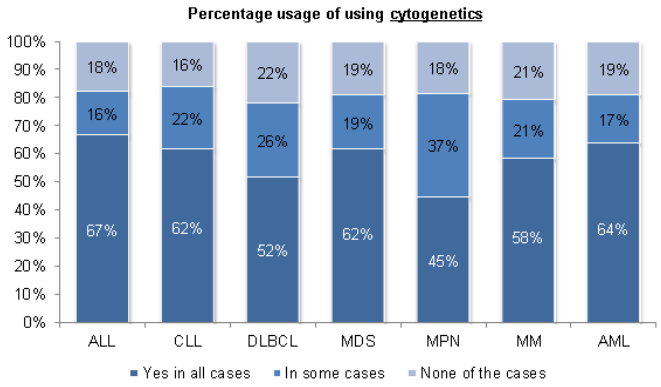
Source: JMP Securities LLC

FIGURE 24. Diagnosis Across Indication by Methodology: Flow Cytometry



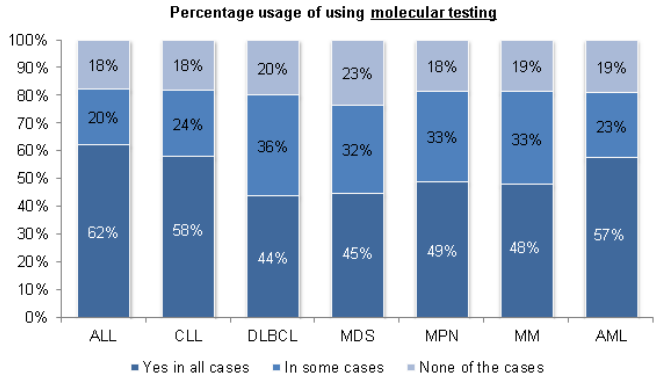
Source: JMP Securities LLC

FIGURE 25. Diagnosis Across Indication by Methodology: Cytogenetics



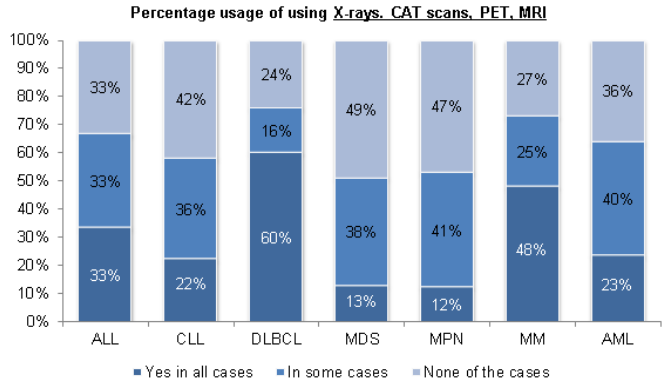
Source: JMP Securities LLC

FIGURE 26. Diagnosis Across Indication by Methodology: Molecular Testing



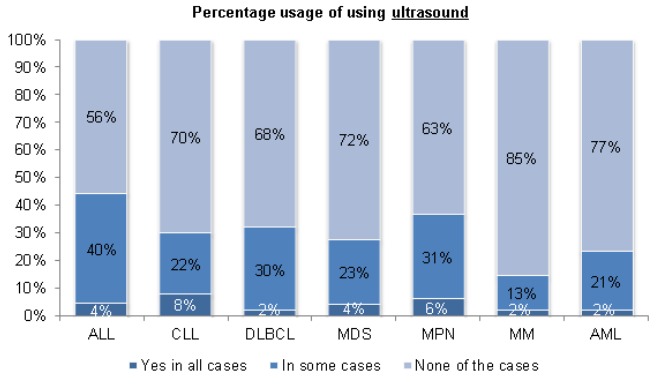
Source: JMP Securities LLC

FIGURE 27. Diagnosis Across Indication by Methodology: X-rays, CAT scans, PET, MRI



Source: JMP Securities LLC

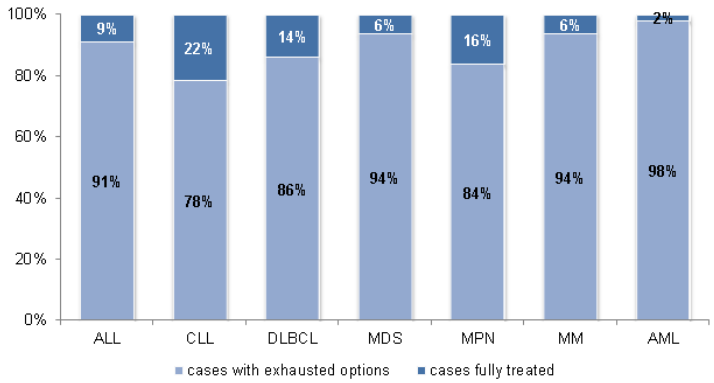
FIGURE 28. Diagnosis Across Indication by Methodology: Ultrasound



Source: JMP Securities LLC

COURSE OF ACTION WHEN PATIENTS EXHAUSTED ALL OPTIONS

FIGURE 29. Fully Treated Cases vs. Cases with Exhausted Options

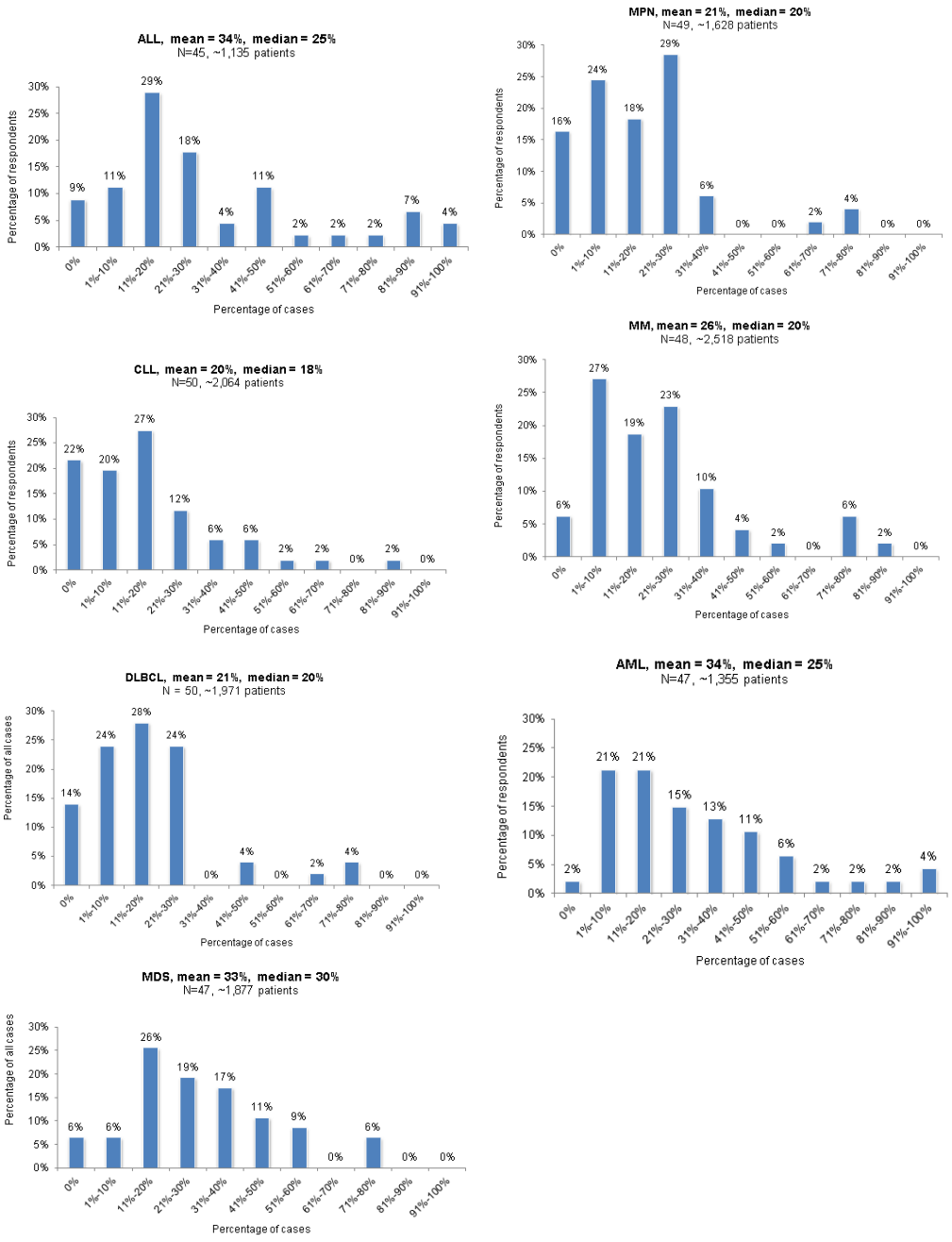


Source: JMP Securities LLC

On average, at least 10.7% of all cases were fully treated in 2013, while a large number of the remaining cases exhausted all available options. Notably, if we break down the cases with exhausted options in Figure 26 by indication, our survey reported that for ALL, 29% of respondents had 11-20% of cases with exhausted options. For MPN, 29% of respondents had 21-30% of cases with exhausted options. This data naturally begs the question of what is the typical next step for our respondents when patients run out of available options. Respondents' answers are compiled in Figure 29.

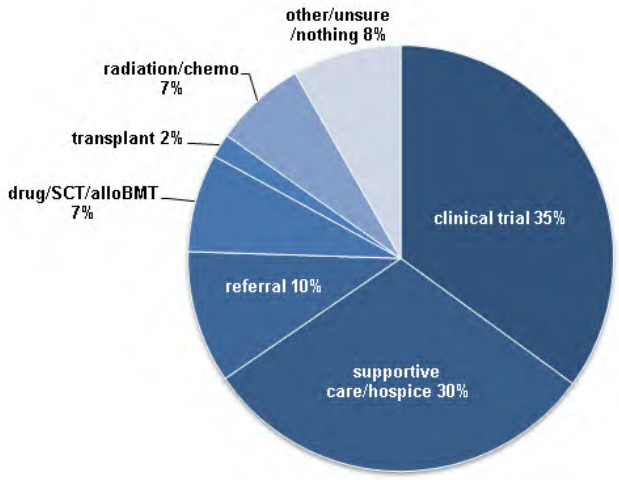
Clinical trials topped the list of answers at 35%, followed closely by supportive care that focuses on quality of life at 30%. On the lower end, variations in radiation or chemotherapy were reported at 7%, while last resort transplant was reported in 2% of cases. 'Referral' signifies the actual referral to another doctor and possibly to academic research centers. Interestingly, no answer relevant to genomics has been mentioned explicitly. Note that the sum is >100% as respondents may have more than one possible course of action per case. Interestingly, 8% of counts reported not knowing what to do next. Combined with hospice care, that is nearly 40% of cases where the physician does not know how to proceed. We also asked our respondents if they would be interested in using a comprehensive cancer assay to manage therapy at this stage and 31% said yes, 19% said no, while 50% were unsure.

FIGURE 30. Percentage of Cases for Which all Available Treatment Options were Exhausted



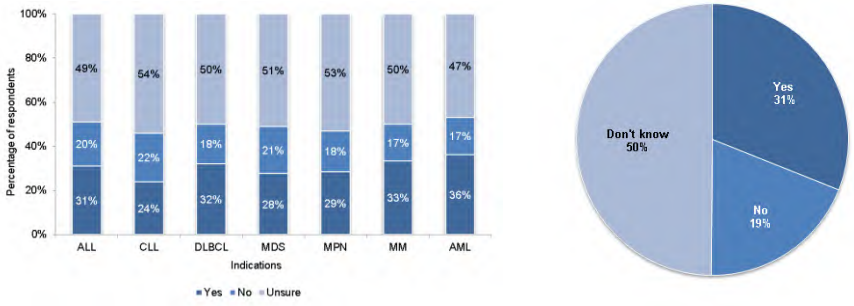
Source: JMP Securities LLC

FIGURE 31. Course of Action when All Options are Exhausted (N=50 respondents * 7 indications)



Source: JMP Securities LLC

FIGURE 32. % of Respondents that Would Use a Comprehensive Cancer Assay to Manage Therapy (per Indication and as an Aggregate) N = 50 respondents * 7 indications



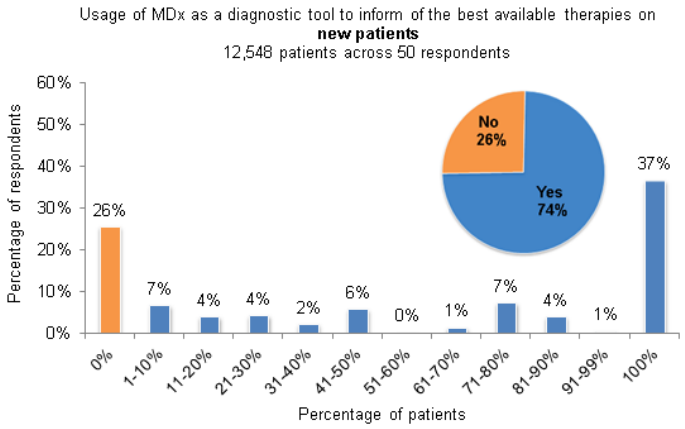
Source: JMP Securities LLC

Remarkably, AML is the indication that has the most cases with exhausted options, with 4% of respondents running out of options in 100% of cases and only 2% of respondents having all of their cases treated. AML also has the most respondents, with 36% willing to use a comprehensive cancer assay to manage therapy. The converse is also true with CLL, which is the indication reported in our survey with the least number of cases with exhausted options, with none of the respondents reporting running out of options in 100% of cases and 22% of respondents reporting that all cases are fully treated. CLL has only 24% of respondents willing to use the same comprehensive cancer assay to manage therapy.

These results suggest a positive correlation between respondents' willingness to try the assay when patients run out of available options more frequently. Cancer care is being quickly transformed by the ability to perform comprehensive genomic analysis of an individual's tumor, and then using this molecular information to identify the most relevant targeted therapies or clinical trials for each patient based on their genomic profile. However, the majority of respondents (~50%) were not sure if they would use such comprehensive cancer assay to manage therapy, indicating that there is a need for: 1) education programs demonstrating its clinical utility, and 2) raising awareness that such a product is already on the market. It is likely also those respondents may be reluctant to convert from a home brew panel test to a commercial version.

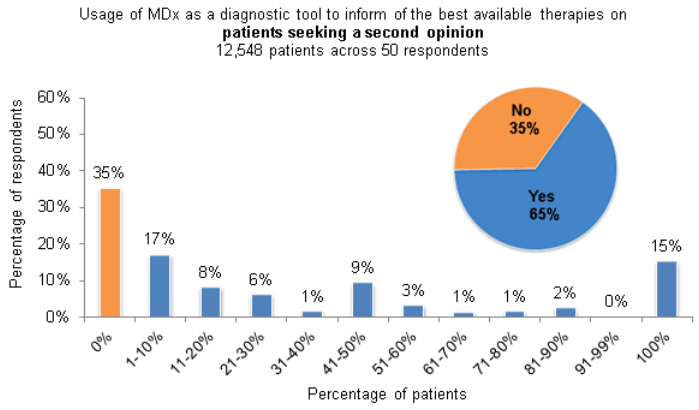
We also asked our respondents on what type of patients they would most likely use molecular testing to inform of the best available therapies. Figures 30-34 rank the types of patients as follow: 1) new patients (37% of all cases); 2) patients seeking a second opinion (15% of all cases); 3) patients already going through treatment but seeking a second opinion (13% of all cases); 4) healthy patients requesting MDx at 13%; 5) sick patients requesting MDx (12% of all cases).

FIGURE 33. Usage of MDx to Inform of the Best Available Therapies on New Patients



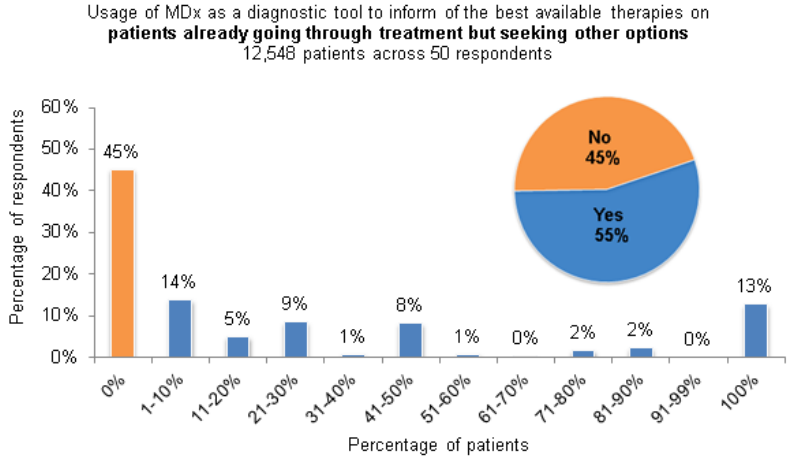
Source: JMP Securities LLC

FIGURE 34. Usage of MDx to Inform of the Best Available Therapies on Patients Seeking a Second Opinion



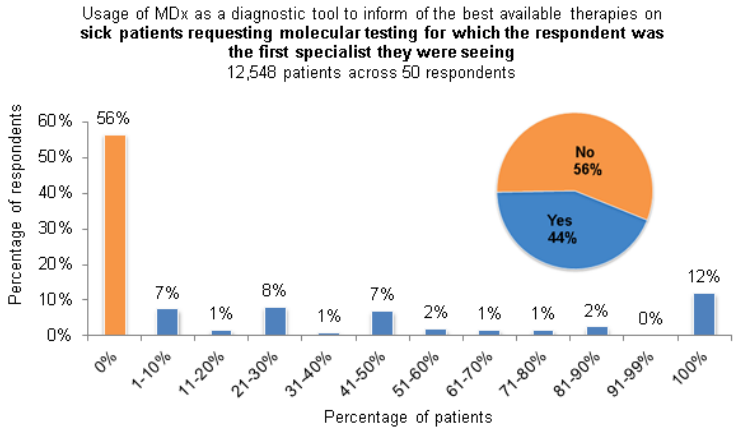
Source: JMP Securities LLC

FIGURE 35. Usage of MDx to Inform Best Available Therapies on Patients Already Going Through Treatment but Seeking Other Options



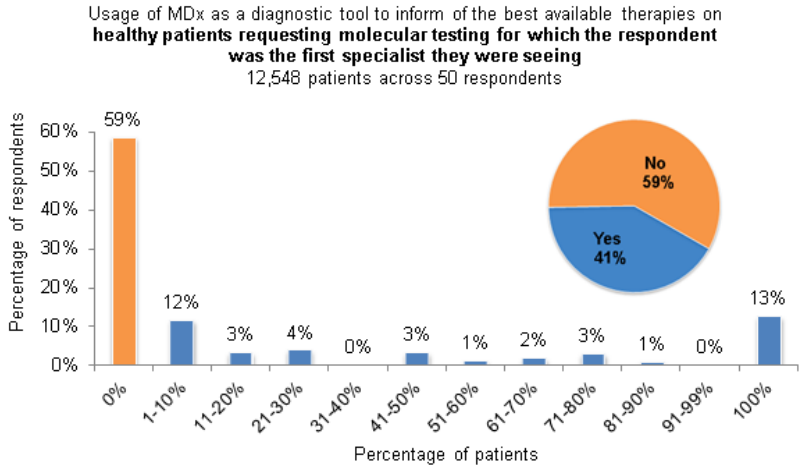
Source: JMP Securities LLC

FIGURE 36. Usage of MDx to Inform of the Best Available Therapies on Sick Patients Requesting Molecular Testing



Source: JMP Securities LLC

FIGURE 37. Usage of MDx to Inform the Best Available Therapies on Healthy Patients Requesting Molecular Testing

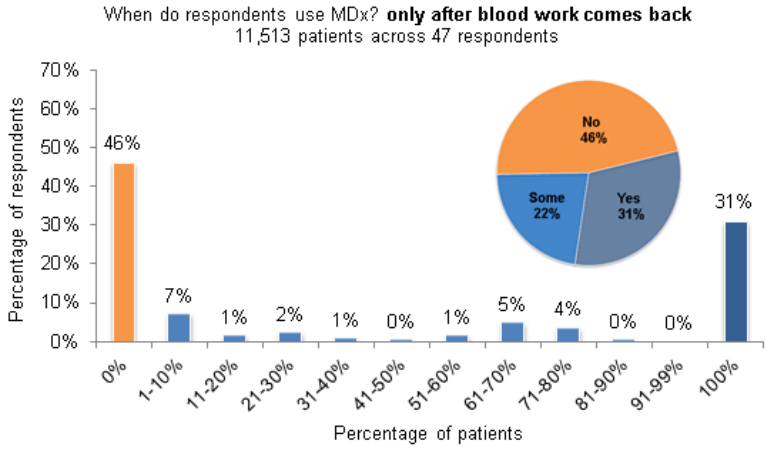


Source: JMP Securities LLC

MDX AS PART OF THE BROADER DIAGNOSIS PROCESS

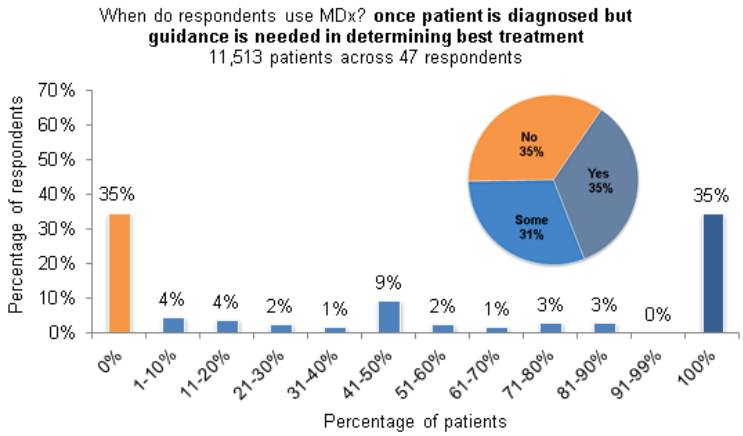
We sought to understand at which stage of the diagnosis process, our respondents would use MDx most frequently. Figures 38-41 indicate the following: 1) 31% of respondents are using MDx only after blood work comes back in all cases; 2) 35% of respondents are using MDx once a patient is diagnosed but guidance is needed in determining best treatment in all cases; 3) 7% only use when morphological features are inconclusive in all cases; and 4) 8% use only in last resort for all cases. This set of data indicates that MDx testing is currently used to guide treatment rather than a diagnosis tool and is therefore considered at a much later stage.

FIGURE 38. Usage of MDx Only After Blood Work Comes Back



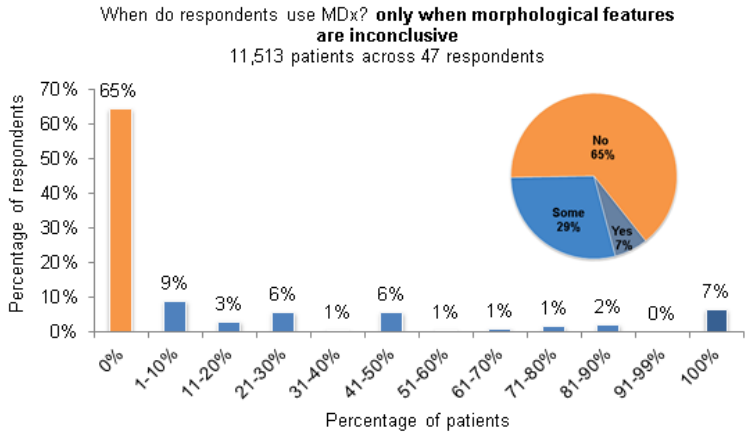
Source: JMP Securities LLC

FIGURE 39. Usage of MDx for Guidance in Determining Best Treatment



Source: JMP Securities LLC

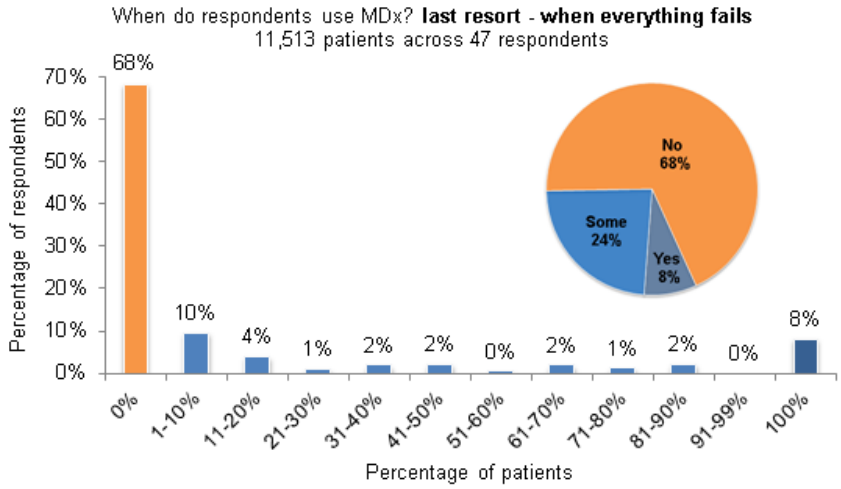
FIGURE 40. Usage of MDx Only When Morphological Features are Inconclusive



Source: JMP Securities LLC

Figure 41 suggests that MDx testing is not the first course of action when morphological features are inconclusive and is used much later in the diagnosis process.

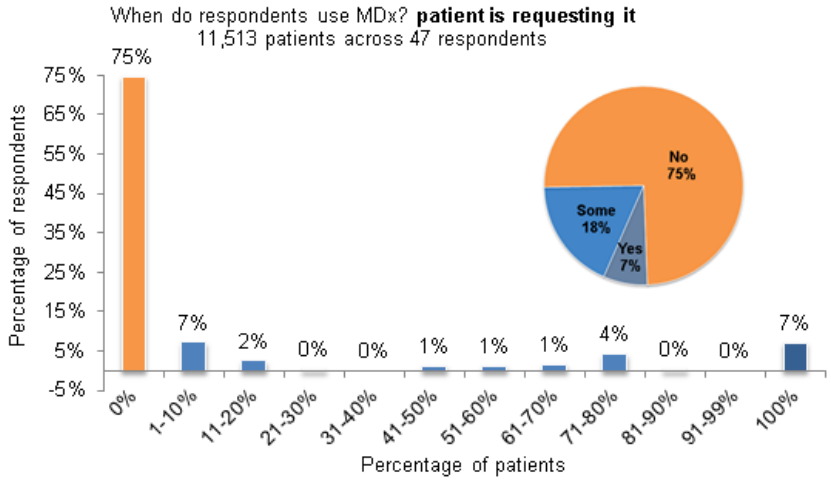
FIGURE 41. Usage of MDx is Last Resort When Everything Fails



Source: JMP Securities LLC

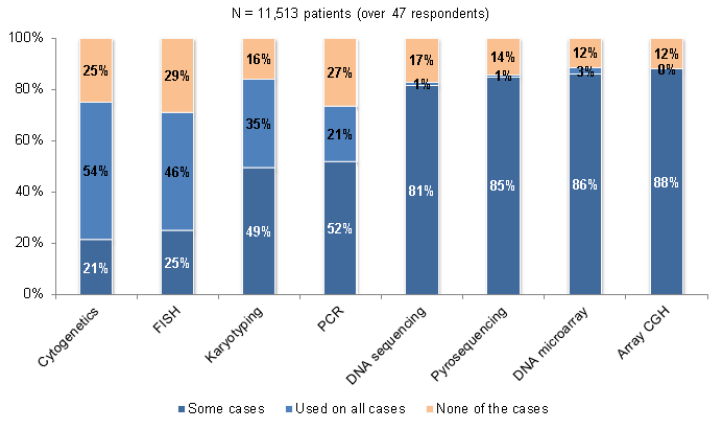
The majority of respondents do not use MDx when everything fails, Figure 42 correlates with Figure 43, which shows MDx is still not part of the process when all available options are exhausted.

FIGURE 42. Usage of MDx When Patient is Requesting It



Source: JMP Securities LLC

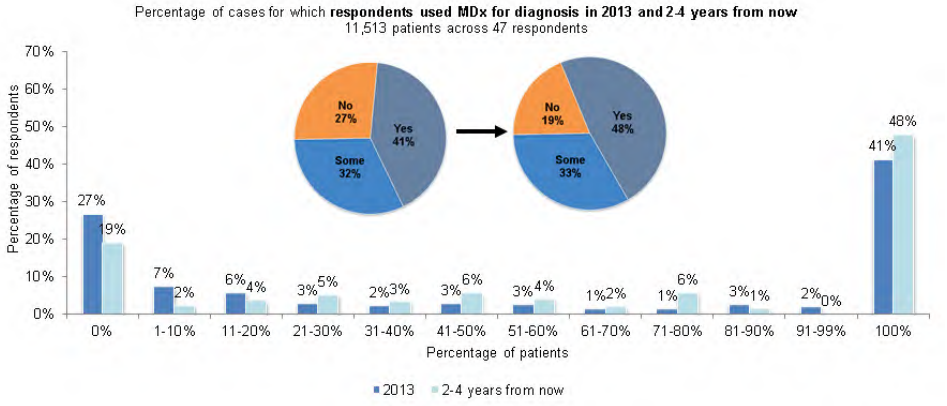
FIGURE 43. MDx Methods Used for Diagnosis



Source: JMP Securities LLC

We sought to determine which MDx methods are the most frequently used in the diagnosis process. In order of frequency, we found that they are ranked as follow: 1) Cytogenetics, 2) FISH, 3) Karyotyping, and 4) PCR. Notably, DNA microarray and Array CGH are the least used methods.

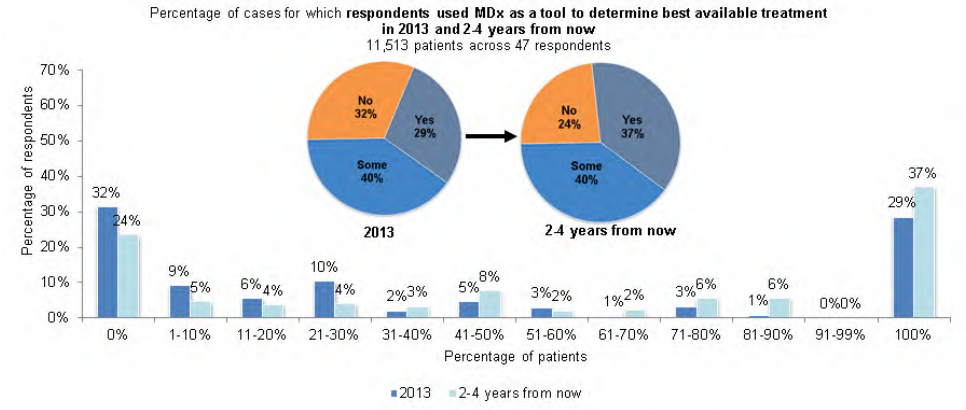
FIGURE 44. Frequency of MDx Usage for Diagnosis in 2013 and 2-4 Years From Now



Source: JMP Securities LLC

In 2013, 41% of respondents (of the 47 users of MDx) actually used MDx testing in all cases, while 48% will use MDx in all of their cases 2-4 years from now, indicating an increase of 7ppt over that time period. In 2013, 29% of respondents used MDx as a tool to guide therapy in all of their cases in 2013 and 37% expects to use MDx for that same purpose 2-4 years from now, translating to an increase of 8ppt over that time period.

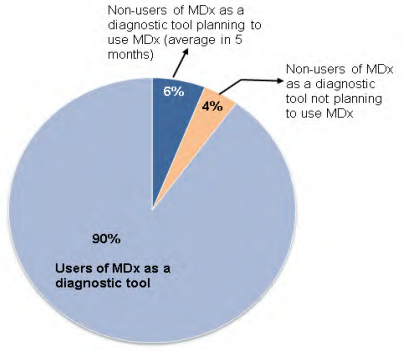
FIGURE 45. Frequency of MDx Usage as a Tool to Guide Therapy in 2013 and 2-4 Years from Now



Source: JMP Securities LLC

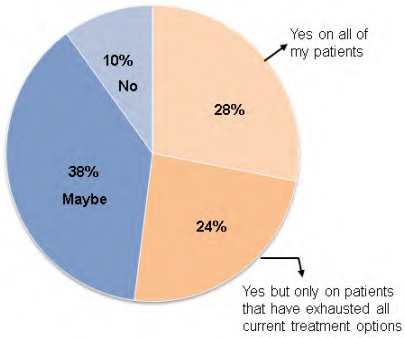
Figures 44 and 45 indicate increasing trends toward including MDx as part of guiding therapy to find better treatments. Although most respondents are already using MDx as a diagnostic tool, only 52% (N=26) were interested in ordering a comprehensive genomic test for their own patients, 38% were unsure whether they would use, and 10% of respondents knew they would not be interested.

FIGURE 46. Users and Non-users of MDx as a Diagnostic Tool (N=50 respondents)



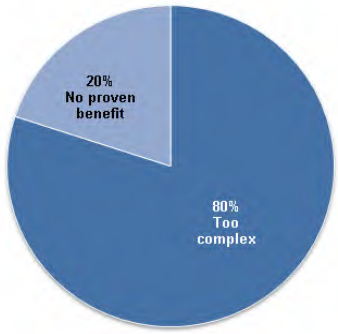
Source: JMP Securities LLC

FIGURE 47. % of Respondents Interested in Ordering a Comprehensive Genomic Test for Their Own Patients (N=50 respondents)



Source: JMP Securities LLC

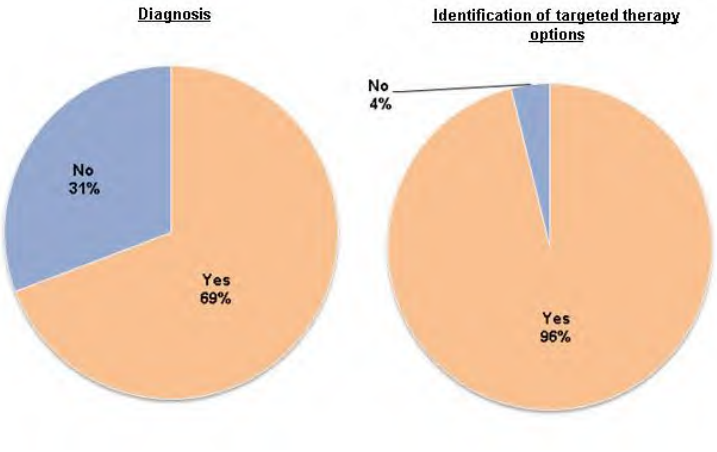
FIGURE 48. Main Reasons for Not Ordering a Comprehensive Genomic Test (N=5)



Source: JMP Securities LLC

Of the 5 respondents not interested in ordering such a test, 4 stated complexity as the main reason for not ordering. Of the 26 respondents interested in ordering a test, 69% thought of the comprehensive genetic panel as a diagnosis tool, while an overwhelming 96% considered using it to identify the best targeted therapy options for their patients.

FIGURE 49. % of Respondents (N=26) that Will be Using this Comprehensive and Clinically Genetic Panel Containing all Relevant Markers 2-4 Years from Today for:

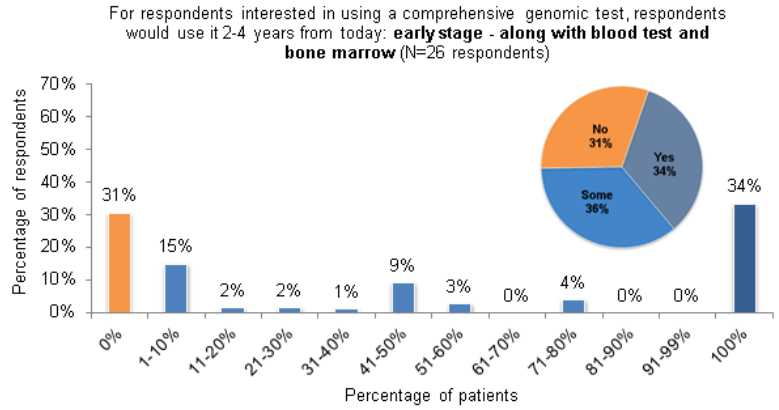


Source: JMP Securities LLC

A LOOK INTO THE FUTURE FOR USING A PANEL TEST IN THE DIAGNOSIS PROCESS

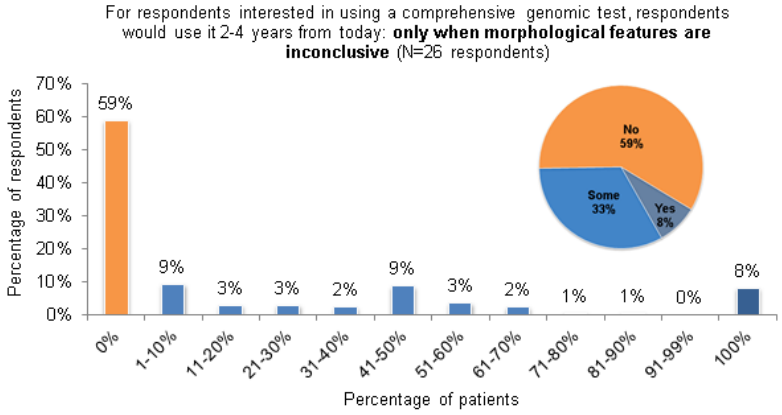
Finally, we sought to understand if such a comprehensive panel test would move the diagnosis process chain 2-4 years from now. Figure 50` indicates that 34% of respondents would use it in all of their cases along with blood test and bone marrow 2-4 years from now versus 31% currently.

FIGURE 50. Usage of a Comprehensive Genomic Test 2-4 Years from Now at the Early Stage – Along with Blood Test and Bone Marrow



Source: JMP Securities LLC

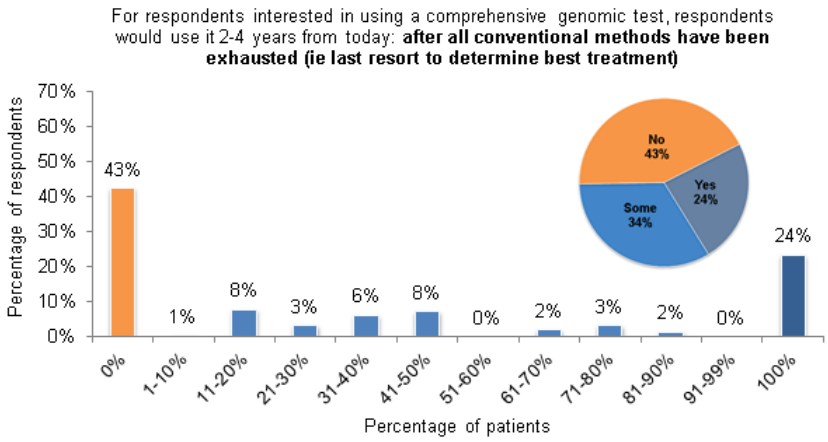
FIGURE 51. Usage of a Comprehensive Genomic Test 2-4 Years from Now at the Early Stage – Only When Morphological Features are Inconclusive



Source: JMP Securities LLC

Figure 51 indicates that 8% of respondents would use only when morphological features are inconclusive 2-4 years from now versus 7% currently. Although it seems to be a small incremental increase, the number of respondents that would use such a comprehensive genomic test in none of their cases drops from 65% to 59% (i.e., a decrease of 6ppt).

FIGURE 52. Usage of a Comprehensive Genomic Test 2-4 Years from Now After All Conventional Methods have been Exhausted



Source: JMP Securities LLC

Figure 52 indicates that 24% of respondents would use this test in all of their cases after all conventional methods have been exhausted versus 8% in 2013. We believe this appears to confirm the future trend that the adoption rate of such a test will continue to increase.

The results indicate that the disease states that have the lowest percentage usage in molecular testing are DLBCL and MDS at 44% and 45% of counts, respectively (336 counts across respondents and indications). These have great potential for uptake, in our view, because of the information deficit inherent in current practices. On the other end, ALL and CLL have the highest percentages usage in molecular testing at 62% and 58%, respectively. AML, MM, MDS are the indications with the least number of cases fully treated, only 2%, 6%, and 6%, respectively. Oncologists treating these indications will be more likely to try a comprehensive assay as they are running out of available options for their patients. On the other end, CLL and MPN have the highest percentage of fully treated cases, 22% and 16%. Although in our view, these numbers are still low and therefore, there is potential for uptake, but perhaps not as much as AML, MM, and MDS. CLL has the least likelihood of further uptake of MDx/comprehensive panel assay while MDS has the greatest potential of uptake for both MDx and/or a comprehensive panel assay.

Company Description

Foundation Medicine is a commercial-stage, molecular diagnostics company. The company's first clinical product, FoundationOne, is the only commercially available, comprehensive molecular information product designed for use in the routine clinical care of cancer patients.

Investment Risks

Timing of Medicare and commercial payer coverage remains uncertain as FMI does not have a positive coverage decision from any commercial payer.

Competition is likely to increase. Foundation may have the first-mover advantage, but given that the genes found on FoundationOne are not proprietary, we believe it is only a matter of time before another competitor surfaces.

Clinical utility remains unproven. The company has not completed a clinical utility trial to demonstrate the value of FoundationOne beyond current tests.

Regulation is likely to increase and timing remains uncertain. Over the past few years, the FDA has stated its intent to more thoroughly regulate laboratory diagnostic tests (LDTs).

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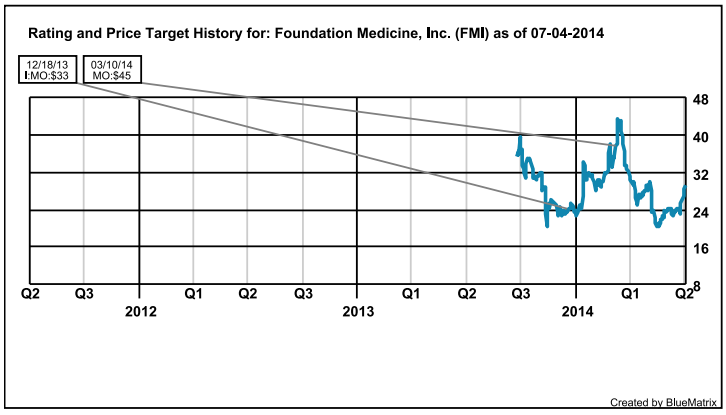
MARKET PERFORM	Hold	137	*30.86%*	Hold	137	*30.86%*	17	*12.41%*
MARKET UNDERPERFORM	Sell	4	*0.90%*	Sell	4	*0.90%*	0	*0%*
COVERAGE IN TRANSITION		37	*8.33%*		37	*8.33%*	0	*0%*
TOTAL:		444	*100%*		444	*100%*	117	*26.35%*

Stock Price Chart of Rating and Target Price Changes:

Note: First annotation denotes initiation of coverage or 3 years, whichever is shorter. If no target price is listed, then the target price is N/A. In accordance with NASD Rule 2711, the chart(s) below reflect(s) price range and any changes to the rating or price target as of the end of the most recent calendar quarter. The action reflected in this note is not annotated in the stock price chart. Source: JMP Securities.



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