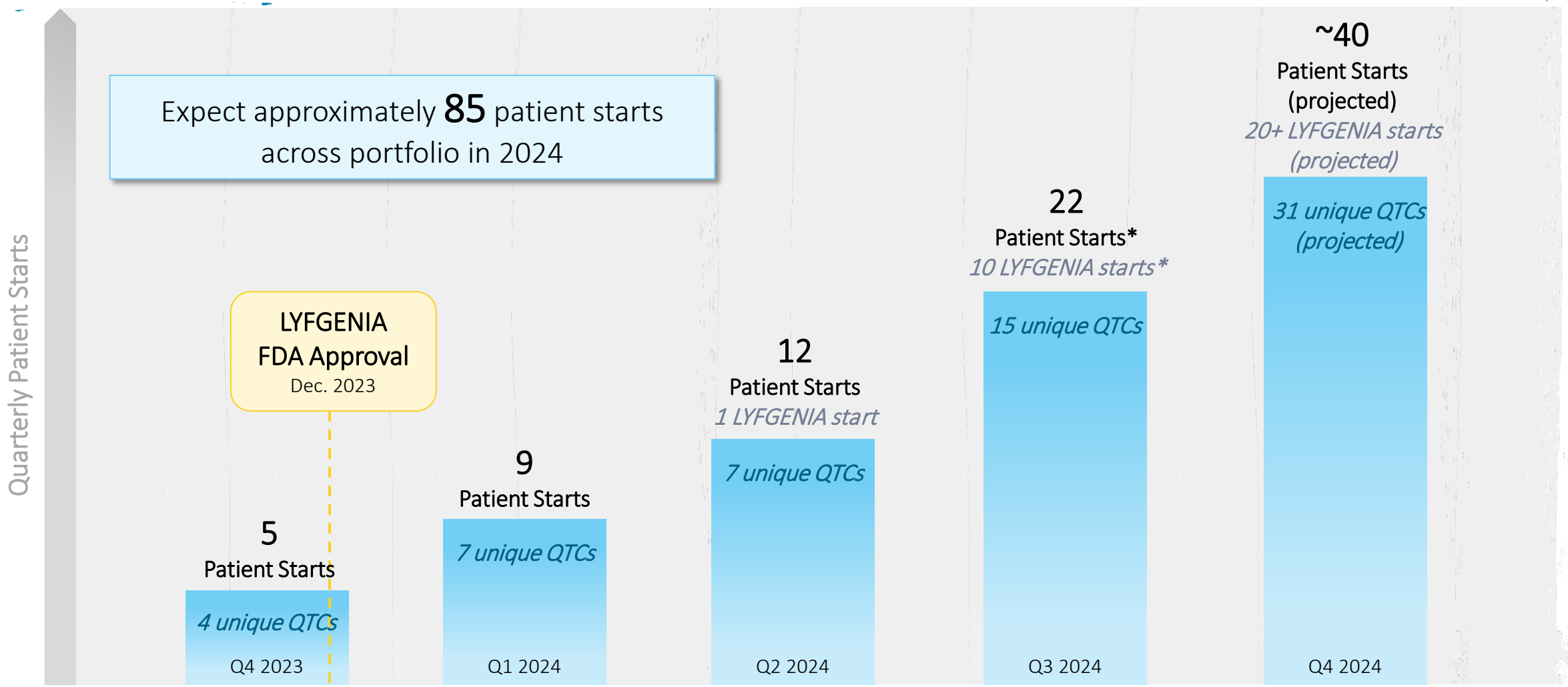
bluebird bio business update call

September 24, 2024

Cautionary statement regarding forward-looking statements

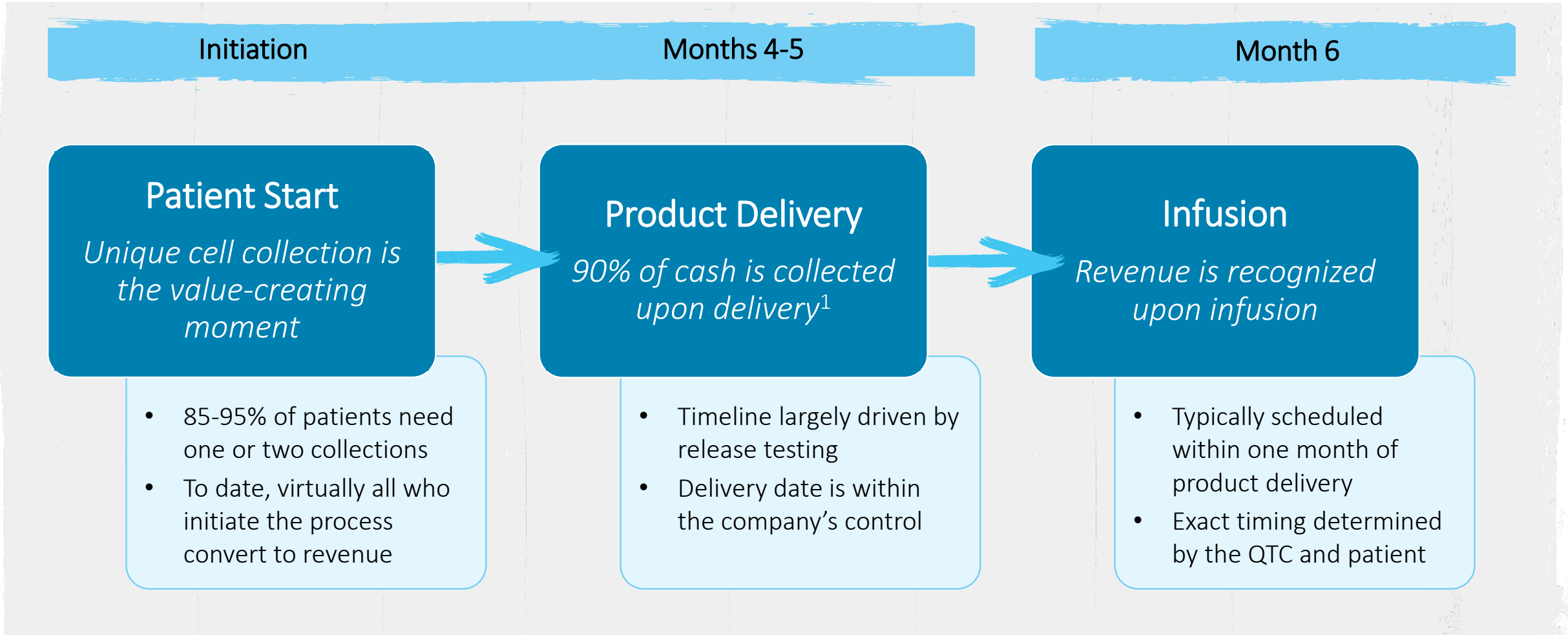
These slides and the accompanying oral presentation contain forward-looking statements and information. The use of words such as “may,” “might,” “will,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “project,” “intend,” “future,” “potential,” or “continue,” and other similar expressions are intended to identify forward-looking statements. For example, all statements we make regarding our expectations regarding our programs and therapies, including but not limited to our manufacturing and commercialization plans, including without limitation, the number and timing of anticipated patient starts across our portfolio of therapies, patient demand for our therapies, our ability to establish commercial infrastructure to support access to our therapies, and the timing and size of our QTC network; our ability to establish favorable coverage for our therapies, including our ability to successfully partner with payers; our expectations regarding our ability to maintain compliance with, and access future tranches under, our term loan facility; the anticipated timing of revenue recognition; our ability to achieve cashflow breakeven in 2H 2025 by scaling to approximately 40 drug deliveries per quarter, realizing a reduction of approximately 20% in cash operating expenses, and raising additional capital; the number of anticipated patient starts; and our anticipated cash runway are forward looking. All forward-looking statements are based on estimates and assumptions by our management that, although we believe to be reasonable, are inherently uncertain. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those that we expected. These risks and uncertainties include, but are not limited to: delays and challenges in bluebird's commercialization and manufacturing of its products; the internal and external costs required for bluebird's ongoing and planned activities, and the resulting impact on expense and use of cash, has been, and may in the future be, higher than expected, which has caused bluebird, and may in the future cause bluebird, to use cash more quickly than it expects or change or curtail some of its plans or both; substantial doubt exists regarding bluebird's ability to continue as a going concern; bluebird's expectations as to expenses, cash usage and cash needs may prove not to be correct for other reasons such as changes in plans or actual events being different than bluebird's assumptions; the risk that additional funding may not be available on acceptable terms, or at all; risks related to bluebird's loan agreement, including the risk that operating restrictions could adversely affect bluebird's ability to conduct its business, the risk that bluebird will not achieve milestones required to access future tranches under the agreement, and the risk that bluebird will fail to comply with covenants under the agreement, including with respect to required cash and revenue levels, which could result in an event of default; the risk that the efficacy and safety results from bluebird's prior and ongoing clinical trials will not continue or be seen in the commercial context; the risk that the QTCs experience delays in their ability to enroll or treat patients; the risk that bluebird experiences delays in establishing operational readiness across its supply chain; the risk that there is not sufficient patient demand or payer reimbursement to support continued commercialization of the Company's therapies; the risk of insertional oncogenic or other safety events associated with lentiviral vector, drug product, or myeloablation, including the risk of hematologic malignancy; the risk that bluebird's products, including LYFGENIA, will not be successfully commercialized; and risks related to compliance with Nasdaq continued listing requirements. These statements are also subject to a number of material risks and uncertainties that are described in our most recent annual report on Form 10-K, as well as our subsequent filings with the Securities and Exchange Commission. Any forward-looking statement speaks only as of the date on which it was made. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise, except as required by law.

Commercial launches have accelerated across bluebird's broad QTC network



*20/22 total starts (9/10 LYFGENIA starts) have already occurred in Q3; an additional 2 are anticipated before the end of the quarter.
Graphic represents patient starts across all three bluebird products

Understanding the ex-vivo gene therapy business model



[1]Pursuant to factoring agreement

Potential for cash flow break-even[1] is in our sights

Key Assumptions

Scaling to **~40** deliveries per quarter

+

~20% reduction in cash operating expenses[3]

=

Target

Quarterly cash flow break-even in **2H 2025**

Additional cash resources are needed to achieve this milestone[2]

1. Cash flow break-even defined as incoming cash exceeding outgoing cashflows for the quarter. 2. Taking into account the minimum cash requirements under the Company's loan agreement with Hercules Capital, Inc., bluebird expects its cash and cash equivalents will be sufficient to fund its operations into the first quarter of 2025. 3. The restructuring is expected to result in a 20% reduction in cash operating expenses when fully realized in Q3 2025, compared to the prior reporting period.


Q+A