Monochorionic diamniotic (MCDA) twins comprise of 20–30% of twin pregnancies; roughly 50% will be undelivered and ‘uncomplicated’ beyond 32 weeks gestation. This review details accumulating data regarding the risk of intrauterine fetal demise (IUFD) in ‘uncomplicated’ MCDA twins and risks associated with prematurity. ‘Uncomplicated’ MCDA twins are at increased risk for IUFD, even when under intensified surveillance in tertiary care centers. The prospective risk of IUFD in uncomplicated MCDA varies among different studies, with reported rates of up to 3.3% at 34 weeks and 2.2% at 36 weeks. If single IUFD occurs, it exposes the surviving co-twin to potential significant morbidity and mortality. It had been suggested that elective preterm delivery would eliminate this risk, but recent evidence of prematurity morbidity are accumulating. With more intensified monitoring from 32 weeks, it is possible that the rate of IUFD is lower than anticipated. We reviewed the data regarding these risks and their contribution to the decision-making process.
IUFD in the late preterm period and its possible consequences on the surviving twin along with the possible outcomes of uncomplicated MCDA twins delivered in the late preterm period or early-term period. By evaluating these parameters, we endeavor to provide some guidance with respect to timing of delivery in such pregnancies.

‘Uncomplicated’ MCDA twin pregnancies

Although dichorionic–diamniotic (DCDA) twins are more common, monochorionic pregnancies are affected by a unique set of complications. MCDA twins have three- to five-fold increased perinatal morbidity and mortality compared with DCDA twins [30–32]. The inherent pathology is related to the chorionicity, which is characterized by placental vascular anastomoses and thus interfetal transfusion [33]. This shared circulation may lead to some unique complications such as twin–twin transfusion syndrome (TTTS), which occurs in 15–20% of MCDA twin pregnancies; discordant intrauterine growth restriction (IUGR), which complicates an additional 25%; and twin–anemia-polycythemia sequence, which has an estimated prevalence of 2% [34]. In uncomplicated twins, the estimated fetal weight (EFW) should not only be appropriate for gestational age but should also be concordant between the two fetuses. The percentage EFW difference is calculated as the difference in weight, divided by the larger twin’s weight, multiplied by 100, with growth defined as discordant if the difference is greater than 20–25% [35].

There is also a two-to four-fold increased risk of structural malformations in MCDA twins, related to both the twinning process and postzygotic events [34]. MCDA twins affected by any of these pathologies are also considered to be ‘complicated’, and therefore associated with an even higher risk of adverse outcomes. Due to the shared vasculature, demise of one twin can have significant effects on the surviving co-twin with ensuing demise or neurological damage, which adds a further dimension of concern when managing these pregnancies. While monochorionic pregnancies represent approximately 20% of all twin pregnancies, published series to date show that approximately 50% will be undelivered and ‘uncomplicated’ at or beyond 32 weeks gestation [14,17,36].

Surveillance

Ultrasound with interval growth assessment and amniotic fluid measurement with inter-twin comparison along with Doppler evaluation is the gold standard in the surveillance of MCDA twins. Nevertheless, the time interval and the combination of surveillance modalities are not standardized, as can be seen in Table 2. Even when ultrasonography indicates concordant growth and the absence of any feature suggestive of TTTS, an increased risk of fetal demise still remains [9–23]. There are two studies that have assessed the optimal time interval for ultrasound surveillance for the early diagnosis of TTTS [37,38]. Both these studies recommend performing ultrasound at an interval not greater than 14 days. As the occurrence of IUFD in the uncomplicated MCDA twins is believed to be related to the pathophysiology of TTTS, it is logical to assume that uncomplicated MCDA twins should be assessed at least every 2 weeks; however, this protocol has not been proven to be effective.

Some authors have added fetal heart rate monitoring (non-stress test) to antenatal surveillance with fetal ultrasound and Doppler [10,11]. Simões et al. reported using weekly testing from 30 weeks onward for all MCDA twins and reported that 55% of pregnancies were delivered prematurely due to their intensified protocol [10].

IUFD

The increased rate of IUFD can be explained in complicated MCDA twin pregnancies. The hypotheses as to why even the ‘uncomplicated’ twins have an increased risk of IUFD includes the occurrence of sudden or subtle variations of the TTTS phenomenon and/or placental insufficiency as an underlying mechanism. Single IUFD has the potential to cause severe mortality and morbidity to the surviving co-twin, including neurologic consequences and prematurity [39]. The neurologic insults reported range from minor morbidities such as loss of hearing or vision to global impairment or cerebral palsy [40]. It is accepted that hemodynamic changes that occur at the time of single IUFD in MCDA twins predispose the surviving co-twin to ischemic white matter changes [41]. The shared placental vasculature or ‘angioarchitecture’ has been hypothesized to contribute to radiologic changes and clinical neuropathology [40].

Hillman recently re-evaluated the risk to the co-twin in a systematic review and meta-analysis of the current literature and found that the risk of co-twin mortality was 15% and that the rate of preterm delivery after a single fetal death was 68% [42]. Abnormal postnatal cranial imaging in the surviving twin was present in 34% of cases, with 26% of co-twins demonstrating neurodevelopmental impairment. These data were concordant with those reported in the much cited review by Ong et al. in 2006 [43]. In a subgroup analysis in a more

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Table 1. Recommended time of delivery of uncomplicated monochorionic diamniotic twins according to worldwide guidelines.

<table>
<thead>
<tr>
<th>Organization (year)</th>
<th>Nation</th>
<th>Recommendation</th>
<th>Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANZCOG (2011)</td>
<td>New Zealand and Australia</td>
<td>37 weeks</td>
<td>[27]</td>
</tr>
<tr>
<td>CNGOF (2011)</td>
<td>France</td>
<td>&gt;36–38 + 6 weeks</td>
<td>[28]</td>
</tr>
<tr>
<td>NICE (2011)</td>
<td>UK</td>
<td>36 + 0 weeks</td>
<td>[10]</td>
</tr>
</tbody>
</table>

recent review, these authors showed that if the single IUFD occurred at 28–33 weeks of gestation, then neurodevelopmental morbidity was considerably increased in MCDA twins in comparison to dichorionic twins with IUFD delivered at the same gestational age (odds ratio \([OR]\): 7.57; 95% CI: 1.1–52.1). If the single IUFD occurred at more than 34 weeks of gestation, then neurodevelopmental morbidity was only mildly increased in comparison to dichorionic twins with IUFD delivered at the same gestational age (OR 1.48; 95% CI: 0.13–17.5). The authors comment that prematurity may be a larger contributing factor to neurologic morbidity than hemodynamic events. This finding contributes to our decision-making not only when considering elective delivery of the monochorionic co-twin survivors, but also when trying to balance the delivery of ‘uncomplicated’ MCDA twins at preterm gestations to eliminate the risk of perinatal death and its associated co-twin sequelae.

Neonatal mortality & morbidity associated with prematurity
As there is a dearth of literature regarding neonatal mortality and morbidity, specifically in both the late preterm and early-term periods of the MCDA twin pregnancies, either complicated or uncomplicated, we will describe the literature regarding neonatal mortality and morbidity in singletons and twins in general.

**Neonatal mortality associated with prematurity**
It has been shown that the neonatal and infant mortality rates have been higher at each gestational age of the late preterm and early-term periods in a US birth cohort of singletons; this increased risk was still evident, even for populations without a medical, obstetric or fetal indication for delivery [44]. The relative risks for neonatal and infant mortality rates were found to be 2.3 (95% CI: 2.1–2.6) and 1.9 (95% CI: 1.8–2.0) at 37 weeks, and 1.4 (95% CI: 1.3–1.5) and 1.2 (95% CI: 1.2–1.3) at 38 weeks, respectively, in comparison to full-term infants [44]. Similar findings were reported over a 7-year period, with an overall three-times higher infant mortality rate among late preterm newborns in comparison to term infants (defined as 37\(\frac{1}{7}\)–41\(\frac{1}{7}\)); however, the incidence of congenital malformation contributed significantly to this increased rate [45]. Apparently, this risk is not limited to the neonatal period – a recent a national
Swedish cohort collected data using birth and death registries from singletons surviving to 1 year of age who were followed until 29–36 years of age. Adjusted hazard ratios (adjusted for sex, birth year, fetal growth, birth order, maternal age at birth, maternal marital status, and maternal and paternal education) for the association between late preterm birth (34–36 weeks) and mortality were 1.53 (95% CI: 1.18–2.00) in early childhood and 1.31 (95% CI: 1.13–1.50) in young adulthood, relative to individuals born full term [46]. No data were found specifically regarding mortality associated with prematurity in twins or MCDA twins.

**Short-term neonatal morbidities associated with prematurity**

Multiples studies, which include a plethora of case–control studies, some hospital-based cohort studies and retrospective multicenter studies, have demonstrated increased short-term morbidity associated with late preterm delivery in comparison to term deliveries [47–52]. During initial birth hospitalization, late preterm infants are more likely than term infants to have at least one or even two or more of the following medical conditions: significant respiratory disease, temperature instability, hypoglycemia, jaundice, apnea, bradycardia, suspected sepsis and delay in discharge [47–55]. Furthermore, it appears that neither fetal lung maturity testing nor admission of antenatal corticosteroids appear to reliably decrease the rates of respiratory morbidity [56–58]. It has also been shown that late preterm neonates are at increased risk for postdelivery hospital readmission than term neonates are [59–62]. A secondary analysis of a multicenter, randomized controlled trial of multiple gestations demonstrated that compared with term neonates (>37th wk), the composite neonatal outcome (one or more of the following: neonatal death, respiratory distress syndrome, early-onset culture-proven sepsis, necrotizing enterocolitis stage II or III, bronchopulmonary dysplasia, grade 3 or 4 intraventricular hemorrhage, periventricular leukomalacia, pneumonia or severe retinopathy of prematurity) was increased at the late preterm period (12.8 vs 0.5%; p < 0.001). Most of the differences in the composite neonatal outcome were driven by respiratory morbidity [63]. No data were found specifically regarding short-term morbidity associated with prematurity in MCDA twins.

**Long-term neonatal morbidities associated with prematurity**

There is an increasing body of evidence that supports the finding that gestational age at delivery impacts measures of health later in life. A recent population-based cohort study found that general health, hospital admissions and longstanding illness at 3 and 5 years of age were increased with increasing prematurity [64]. A different study with the same cohort reported that the proportion of children who did not reach a good level of overall achievement at school age of 5 years increased with prematurity and that this increased risk remained after adjustment, even for early-term (adjusted RR: 1.05; 95% CI: 1.00–1.11) and late preterm children (adjusted RR: 1.12; 95% CI: 1.04–1.22) [65]. Another recent study that included 215,138 children born from 1994 to 1998 to mothers residing in New York (NY, USA) found that both preterm and late preterm infants have higher odds of requiring special education and have lower third-grade test scores than full-term infants [66]. A cohort of adults (20–36 years old) who did not have any registered congenital anomalies and who were born in Norway between 1967 and 1983, it was demonstrated that preterm infants (34–36 weeks’ gestation) were 2.7-times more likely to have cerebral palsy (95% CI: 2.2–3.3), 1.6-times more likely to have mental retardation (95% CI: 2.2–3.3) and 1.5-times more likely to have developmental disabilities (95% CI: 1.2–1.8) [67]. No data were found specifically regarding long-term morbidity associated with prematurity in twins or MCDA twins.

**Review of evidence for the risk of IUFD & timing of delivery in uncomplicated MCDA twin pregnancies**

Striking the balance between prematurity and minimizing the risk of unexpected fetal intrauterine demise in ‘uncomplicated’ MCDA twins is a relatively recent controversial issue that has evolved over the last decade. The optimal timing for delivery of such pregnancies has been addressed in the literature; however, only a few studies focus on this ‘uncomplicated’ cohort with respect to the prospective risk of fetal death. Out of the 15 studies that evaluated the prospective risk of fetal demise in MCDA twins, only those that referred to a subpopulation of ‘uncomplicated’ MCDA twins were included in this review; characteristics of these studies are detailed in Table 3. In general, the definition of ‘uncomplicated’ MCDA twins is comparable among these studies. Unanimously, pregnancies complicated by TTTS (as defined by the Quintero staging system), fetal malformations or chromosomal abnormalities, and those that were reduced from higher order multiple pregnancies were excluded. However, there were some differences in the definitions of IUGR and intertwin growth discordance. Some define IUGR when the EFW is less than the 5th percentile, others use the 10th percentile, whereas others do not exclude such patients or do not define the

### Table 3. Characteristics of studies describing the prospective risk of intrauterine fetal demise in ‘uncomplicated’ monochorionic diamniotic twins.

<table>
<thead>
<tr>
<th>Study (year)</th>
<th>Country</th>
<th>Years performed</th>
<th>Design</th>
<th>Ref.</th>
</tr>
</thead>
</table>
growth restriction [9,11–13,21,23]. With regard to the threshold to define intertwin discordance, some use 20% while the others use 25% as the cutoff [11,12,23]. Only two studies have used abnormal Doppler evaluation to help define these pregnancies as complicated [9,23].

The prospective risk of IUFD according to the different studies reviewed and their recommendations are detailed in Table 4. This risk in ‘uncomplicated’ MCDA twins was first published in 2005 based on evidence from the UK [9]. The prospective risk of IUFD was calculated as the number of IUFDs that occurred within the 2 weeks following the beginning of week X divided by the number of continuing uncomplicated pregnancies at the beginning of week X. The data suggested that even uncomplicated MCDA twin pregnancies remain at high risk of IUFD if the strategy of elective delivery following a course of antenatal corticosteroids at 34 weeks. Not long after this publication, a US group used this prospective risk of IUFD calculation to evaluate an apparently normal cohort [11]. Again, a relatively high prospective risk of IUFD was found, with the nadir at 34 weeks gestation. Based on these findings, an intensified surveillance protocol was recommended along with consideration of elective delivery following a course of antenatal corticosteroids at 34 weeks.

More recent studies have challenged these recommendations. One study that performed weekly ultrasound and Doppler studies from 32 weeks onward found a lower prospective risk of IUFD, which was similar to dichorionic twin pregnancies [12]. However, this study was limited by the low number of continued pregnancies beyond 34 weeks. A larger cohort study of uncomplicated MCDA twins also found a low prospective risk of IUFD in the late preterm period, with no IUFD occurring after 34 weeks, and again concluded that they do not support elective preterm delivery for prevention of IUFD [13]. These results were not replicated in a subsequent study that found a slight increase beyond 34 weeks and significant increase at 38 weeks of gestation [21].

The main limitations of the above studies are their retrospective nature and the fact that they span up to 13 years. A large prospective cohort study was recently published, which only spanned 30 months [23]. The authors reported a low, although not negligible, prospective risk of IUFD; however, they still recommended delivery at 37 weeks with the strategy of close fetal surveillance. This study was limited by a possible Hawthorne effect, in that the study population cohort was highly compliant within a research setting. This may explain the low morbidity and mortality rates recorded, and might impose a limitation on generalizing from this study.

All of the above studies were carried out at tertiary referral centers, which may not represent the general population. One could argue that MCDA twins are at sufficiently high risk, and therefore should be monitored in a tertiary institution; however, when the pregnancy remains uncomplicated, they are not always referred. Only one population-based study that evaluated the prospective risk of fetal death in MCDA twin pregnancies was found [18]. Analysis was performed only on undelivered MCDA twin pregnancies beyond 33 weeks, without a standardized surveillance protocol. However, it might be the only one applicable to situations where tertiary care centers are not readily available.

### Table 4. Prospective risk of fetal demise according to various studies of ‘uncomplicated’ monochorionic diamniotic twins.

<table>
<thead>
<tr>
<th>Study (year)</th>
<th>24 weeks n(%)†</th>
<th>32 weeks n (%)†</th>
<th>34 weeks n (%)†</th>
<th>36 weeks n (%)†</th>
<th>Recommended timing for consideration of elective delivery (weeks)</th>
<th>Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barigye et al. (2005)</td>
<td>151 (4.6)</td>
<td>139 (4.3)</td>
<td>120 (3.3)</td>
<td>NR</td>
<td>32</td>
<td>[9]</td>
</tr>
<tr>
<td>Lee et al. (2008)</td>
<td>130 (2.3)</td>
<td>115 (1.7)</td>
<td>99 (2)</td>
<td>49 (2)</td>
<td>34</td>
<td>[11]</td>
</tr>
<tr>
<td>Domingues et al. (2009)</td>
<td>111 (2.7)</td>
<td>79 (1.3)</td>
<td>50 (0)</td>
<td>0 (0)</td>
<td>36</td>
<td>[12]</td>
</tr>
<tr>
<td>Smith et al. (2010)</td>
<td>234 (1.3)</td>
<td>201 (0.5)</td>
<td>NR</td>
<td>173 (0)</td>
<td>36–37</td>
<td>[13]</td>
</tr>
<tr>
<td>Farah et al. (2012)</td>
<td>144 (4.9)</td>
<td>128 (2.3)</td>
<td>111 (2.7)</td>
<td>90 (2.2)</td>
<td>34</td>
<td>[21]</td>
</tr>
<tr>
<td>Breathnach et al. (2012)</td>
<td>131 (1.5)</td>
<td>96 (1)</td>
<td>37</td>
<td>NA</td>
<td></td>
<td>[23]</td>
</tr>
</tbody>
</table>

†Prospective risk of fetal demise per pregnancy.

NR: Not reported.

### Table 5. Number needed to treat to prevent intrauterine fetal demise in uncomplicated monochorionic diamniotic twins at the various gestational ages.

<table>
<thead>
<tr>
<th>Study (year)</th>
<th>Country</th>
<th>32 weeks</th>
<th>34 weeks</th>
<th>Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barigye et al. (2005)</td>
<td>UK</td>
<td>23</td>
<td>30</td>
<td>[9]</td>
</tr>
<tr>
<td>Lee et al. (2008)</td>
<td>USA</td>
<td>58</td>
<td>50</td>
<td>[11]</td>
</tr>
<tr>
<td>Smith et al. (2010)</td>
<td>USA</td>
<td>201</td>
<td>NA</td>
<td>[13]</td>
</tr>
<tr>
<td>Farah et al. (2012)</td>
<td>Ireland</td>
<td>43</td>
<td>37</td>
<td>[21]</td>
</tr>
<tr>
<td>Breathnach et al. (2012)</td>
<td>Ireland</td>
<td>65</td>
<td>96</td>
<td>[23]</td>
</tr>
</tbody>
</table>

NA: Not applicable.
Bearing in mind all the potential limitations of the published studies, they still provide important data to reference with regard to risk assessment and the number needed to treat. Recently, number needed to treat has been suggested as the means to convey information with regard to risk and benefit. The number of MCDA twin pregnancies needed to be delivered prematurely in order to prevent one case of IUFD varies among the different studies, as outlined in Table 5.

Another model to determine optimal delivery timing was recently published [68]. This was a decision analysis that compared strategies of scheduled delivery between 32 and 38 weeks of gestation, with or without confirmation of fetal lung maturity, and assessed outcomes such as fetal/infant death, respiratory distress syndrome, cerebral palsy and mental retardation. The preferred strategy based on the model for women with uncomplicated MCDA twins was delivery between 36 and 38 weeks of gestation. The authors acknowledged, however, that this is not a clinical study and that there are inherent limitations of such a model, including the choice and precision of the estimates that were included.

Expert commentary
Initially, when the data highlighting the increased risk of unanticipated IUFD in uncomplicated MCDA twins emerged, the recommendations were understandably cautious, with delivery timings at 32 and 34 weeks. As our knowledge of the implications of elective late preterm delivery increases, we have begun to re-evaluate these recommendations. Further evidence is needed to evaluate short- and long-term morbidities associated with late preterm and early term deliveries in twins, and specifically in uncomplicated MCDA twins.

The more recent evidence reports on MCDA twins managed in tertiary care units where the potential IUFD risk is appreciated and intense surveillance is performed. The risk of IUFD occurrence has been demonstrated to be less than previously reported; however, it is not negligible, and more evidence is needed to assess the risk in uncomplicated MCDA twins managed in the general clinical setting. Intense surveillance might provide some benefit, at least with respect to patient and provider reassurance.

Further evaluation of parameters such as mildly discordant amniotic fluid volumes and the benefit of performing fetal heart monitoring are other areas to be explored. It has been argued that the effects of IUFD are so detrimental to the co-twin that scheduled elective preterm delivery remains reasonable. We believe that avoiding iatrogenic prematurity is an important and achievable goal; therefore, we advocate for intensified surveillance between 32 and 36 weeks of gestational age and timely delivery at 36–37 weeks. It is imperative that the patient is be aware that this intensified surveillance and delivery timing does not negate all risks.

In conclusion, the optimal timing of uncomplicated monochorionic twin delivery remains controversial. On one hand, there is a significant concern regarding unanticipated prospective single twin demise, with rates between 0 and 3.3% at 34 weeks and 0 and 2.2% at 36 weeks. Although surveillance at and beyond these gestational ages may warrant delivery, there would still be cases of IUFD that have potentially devastating effects on the surviving co-twin. On the other hand, the risk of late prematurity is associated with a small but significant risk of short- and long-term morbidity and mortality. At 34 weeks, the number of twins that may need to be delivered electively to avoid one IUFD ranges from 30 to 96 pairs. The arguments supporting the various timing recommendations, which vary from 32 to 37 weeks of gestation, are all logical and legitimate; but on balance, scheduled delivery at 36 weeks is more generally accepted. Ultimately, appropriate counseling of all the potential outcomes and shared decision making is necessary to provide the best care in these high-risk pregnancies.

Five-year view
Most MCDA twin studies are retrospective analyses of existing data. Although important data have been obtained from these, future research should place an emphasis on prospective studies and should focus on means to improve outcomes. In addition, this research should consider outcomes that reach beyond the initial admission period. In the future, with increased numbers of uncomplicated MCDA twins remaining pregnant at later gestations, there will potentially be more cases available to analyze the prospective risk. Assuming intense surveillance beyond 30–32 weeks of gestation in such pregnancies becomes standard of care, there is also potential to evaluate the benefit of each of the modalities used. With advances in modern medicine cranial imaging may improve, which will aid the detection of neuromorbidities. As advised by Hillman et al., population-based data with accurately defined prenatal and postnatal complications will provide realistic complication rates, allowing us to better determine management of these pregnancies. The evidence could be used to review all potential factors that contribute to single IUFD, and allow us to extrapolate the data allowing for treatment and intervention bias. There must also be consistent neurodevelopmental follow-up and standardized cranial imaging going forward to allow unbiased analysis of prematurity and neurological morbidity to help define cause and effect. The next 5 years will hopefully bring more studies that pay careful attention to the study population (population based). Two important areas of focus will be ways to predict poor outcomes and short- and long-term outcomes of MCDA neonates and infants.

Financial & competing interests disclosure
The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

No writing assistance was utilized in the production of this manuscript.
Key issues

- Monochorionic diamniotic (MCDA) twins comprise approximately 20–30% of all twin pregnancies.
- Approximately 50% of MCDA twins will be undelivered and ‘uncomplicated’ at or beyond 32 weeks of gestation.
- Uncomplicated MCDA twins include those that have no evidence of twin–twin transfusion syndrome, aneuploidy and malformation, and remain concordantly grown and are appropriately grown for gestational age.
- There is still a significant risk of intrauterine fetal demise (IUFD) in uncomplicated MCDA twins at the late preterm period.
- When IUFD occurs, the surviving co-twin may suffer significant morbidity and mortality.
- Some have offered elective preterm delivery to prevent unanticipated IUFD and its effects on the co-twin.
- Scheduled elective delivery at the late preterm period is associated with its own inherent risks.
- Intensified monitoring, although not clearly defined, may reduce the risk of unanticipated IUFD.
- Optimal time of delivery in such pregnancies is not clear at present.
- Full disclosure of the potential risks and benefits of delivery time options should be paramount when counseling patients.

References

Papers of special note have been highlighted as:

- of interest
- **of considerable interest

6 Summary that highlights the definition, terminology, epidemiology, etiology, biology of maturation, clinical care, surveillance and public health aspects of late preterm infants.
11 First significant paper to highlight the increased risk of intrauterine fetal demise at the late preterm period in uncomplicated monochorionic diamniotic twins.
24 Mahony R, Mulcahy C, McAuliffe F, Herlihy CO, Carroll S, Foley ME. Fetal

**Recent and prospective study assessing the prospective risk of intrauterine fetal demise in uncommitted monochorionic diamniotic twins.**


**Updated systematic review and meta-analysis of the effects of intrauterine fetal demise on the surviving co-twin, with interesting subgroup analysis, suggesting morbidity may mainly be affected by gestational age rather than by chorionicity.**


**A national Swedish cohort study that suggested that late preterm birth is also associated with increased childhood and adulthood mortality.**


53 Rubaltelli FF, Bonafe L, Tangucci M, Spagnolo A, Dani C. Epidemiology of neonatal acute respiratory disorders. A multicenter study on incidence and fatality rates of neonatal acute respiratory disorders according to gestational age, maternal age, pregnancy complications and type of delivery. Italian Group of Neonatal
Review

Timing of planned delivery in uncomplicated monochorionic diamniotic twin pregnancies


• Secondary analysis of a multicenter randomized controlled trial that demonstrated increased short-term morbidities in twins in the late preterm period.


Website


• Thorough and systematic up-to-date review of different aspects regarding managing twin pregnancies, including recommendations for time of delivery.